



Higher Education
Quality Council
of Ontario

An agency of the Government of Ontario



Second Annual Review and Research Plan

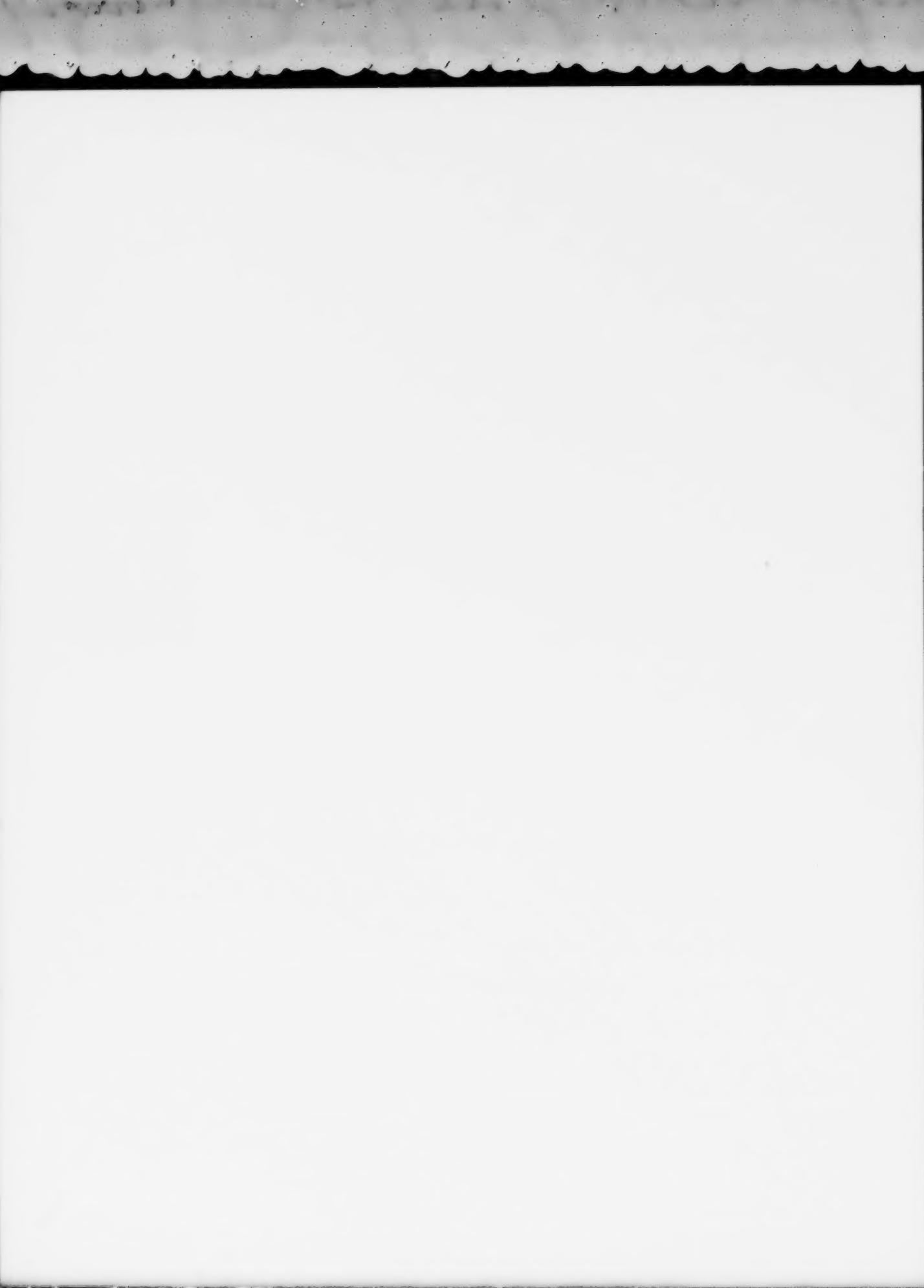


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President's Introduction

It has been a privilege and pleasure to play a part in the formation of the Higher Education Quality Council of Ontario. It has also been the fulfillment of a wish born of my experience as a university president, and shared with college and university leaders across Ontario, to have more reliable knowledge on which to base decisions on the most effective use of scarce resources.

And what holds true in this regard for institutions holds true equally for government, students, parents, and employers: all have educational-investment choices to make; all need access to sound knowledge of the benefits and costs of higher education. It is HEQCO's mission to pursue such knowledge through research, to interpret that research and disseminate it, and, where appropriate, to distill it into policy advice to the government.

There's an old saying that "you cannot make flowers grow faster by pulling on them." Those familiar with research will know that knowledge, as distinct from information, needs time to grow, nurtured by careful investigation, deliberation, and debate. For this reason we at HEQCO have enlisted some of the most knowledgeable people in their fields to undertake the research that will lead to deeper and more comprehensive understanding of higher education – understanding that bears on participation, accessibility, quality, accountability, and system design. In the past six months we have released eight commissioned papers, with more due for publication in the coming months. (All are, or will be, available at www.heqco.ca.) And we have begun to provide counsel to the Minister of Training, Colleges, and Universities on such issues as the Multi-Year Accountability Agreements, the Student Access Guarantee, and polytechnic education. That advice too will in due course be made public.

An essential part of HEQCO's statutory mandate is "to evaluate the post-secondary education sector, report to the Minister on the results of the evaluation and make the report available to the public." In our first Review and Research Plan we described the work we would need to

undertake in order to fulfill this mandate in an evidence-based way. While recognizing that the task of fully understanding and assessing our higher education system requires a sustained year-by-year effort, we offer in this our second report some initial conclusions.

Overall we find that, while Ontario's higher education system is in many ways very good, expectations of the system are high and rising. The many improvements in recent years are commendable. Yet continued attention is required if the system is to meet Ontarians' future needs and expectations.

Like many advanced jurisdictions, Ontario continues to grapple with the challenges of moving to a knowledge-based economy and society. Governments and the public at large rightly sense that universities and colleges can play a pivotal role in this transformation, enhancing economic prosperity and creating opportunities for more people. It is no accident that the world's most rapidly developing economies are investing heavily in the expansion of their higher education systems. For individual Ontarians, higher education – whether it leads to a degree, a diploma, or certification in a skilled trade – is increasingly seen as essential to economic security.

These expanded expectations come on top of – not in lieu of – the longer-standing expectation that higher education will contribute to social and cultural development. Indeed, the expectation that universities and colleges will be instruments for promoting social integration and cohesion has seldom been stronger. For individuals from historically disadvantaged groups, and for those whose families are new to Canada, higher education may be the surest step to full participation in mainstream economic, social and political institutions.

We have evaluated the sector based on five major themes: participation, accessibility, educational quality, accountability, and design of the higher education system. For each theme we have tried to articulate what we believe are reasonable expectations for the system, and we use the best available evidence to assess where the sector stands relative to these expectations. In some cases our assessment is tentative, and better information will provide the basis for a firmer judgement in future years.

Throughout its recent history, the higher education system has shown a capacity to adapt to the changing needs of students and of the society it serves. The system's record of adaptation – during decades when the public sector as a whole has been challenged to provide better services to more people in an environment of constrained resources – is a tribute to the faculty, staff, administrators, alumni, and supporters of the colleges and universities, and also to the government which is their largest single partner.

Ontarians' rising expectations for their higher education system will continue to challenge governments and higher education institutions. The Council will report each year on Ontario's progress in meeting these challenges. We are under no illusion that we will somehow find the Great Northwest Passage to educational enlightenment. The gains we will make in analysis and policy recommendations will be won through the patient findings of research. But this is as it should be: in a fast-forward world it is the tests applied by education that remain constant: the repeatable experiment, the logical argument, the creative insight. As the American writer Ralph W. Sockman lyrically put it, "The larger the island of knowledge, the longer the shoreline of wonder."

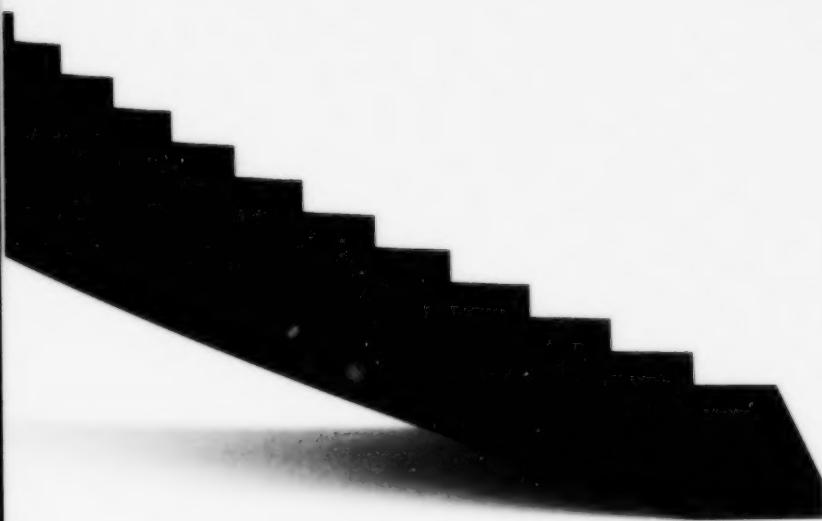
Many people have contributed to this report, chief among them are Council members Norie Campbell, Gisèle Chrétien, Navin Dave, Catherine Henderson, David Marshall, and Philip

Steenkamp who, led by chair the Honourable Frank Iacobucci, have guided the Council's research program and administrative operations. Contributing to the substance of our research are the expert scholars who have authored the papers we have used in forming conclusions and setting directions for further inquiry. A special thank-you is due to the heads of Ontario's colleges, universities, and associations who welcomed my colleagues and me for candid discussion of issues and challenges.

Finally, I should like to acknowledge, both personally and for HEQCO, the intellectual leadership of Dr. Ken Norrie, Vice-President Research, who ably and enthusiastically assisted by the HEQCO team, is the principal author of this report.



James Downey,
President & CEO



Executive Summary

The purpose of this report is to provide an initial evaluation of Ontario's postsecondary education system (PSE) and to outline priority areas for future research.

The Higher Education Quality Council of Ontario (HEQCO) is mandated by statute "to evaluate the post-secondary education sector, report to the Minister on the results of the evaluation and make the report available to the public." In 2007 HEQCO published a research plan describing the work it would undertake in order to fulfill this mandate in an evidence-based way.

The task of taking a just measure of the PSE system requires a sustained year-by-year effort. This report proposes some broad goals for the PSE system, incorporating and elaborating on the goals articulated by the government in its 2005 *Reaching Higher* plan. It offers some initial findings on where Ontario stands in meeting these goals, organized around five issues:

- aggregate PSE participation and educational attainment
- accessibility
- educational quality
- system design and the supply side of PSE
- accountability

The report concludes by identifying research priorities for the coming year.

Participation and Educational Attainment

The first broad goal for Ontario PSE is that the province should have the appropriate degree of educational attainment to meet its current and future human capital needs.

At present 62% of working-age Ontarians report that they hold a postsecondary credential – whether it is a university degree, a diploma or certificate from a public or private college, or an apprenticeship or trades certification.

Canada leads all other countries in the Organisation for Economic Co-operation and Development (OECD) in the share of population aged 25–64 with a postsecondary credential, and Ontario exceeds the Canadian average in this measure.

These figures suggest a high level of overall educational attainment. There are nevertheless reasons for caution.

- Looking solely at the share of the working-age population with a university degree, Ontario ranks behind the United States, Norway and the Netherlands. Canada's apparent overall lead in PSE attainment comes from the high proportion of the population reporting non-university credentials – a category that includes credentials from programs of varying lengths at a wide variety of public and private institutions, and where data across countries are difficult to compare.
- Much of the current educational attainment is due to credentials earned at universities and colleges outside Canada. Twenty-one per cent of working-age Ontarians who hold a postsecondary credential earned this credential outside of Canada. Immigrants are significantly more likely than non-immigrants to have university degrees at the bachelor's level or above – 31% versus 23%. These figures confirm the importance of ensuring that foreign credentials are assessed and accepted in the Canadian workplace. A reduction in immigration would impair the average education level of the future labour force.
- While Ontario exceeds the Canadian average in university degrees and college diplomas and certificates, it ranks last among the provinces in the share of the working-age population holding an apprenticeship or trades certification. The number of new apprenticeship registrants has grown strongly, but more needs to be known about completion rates and about the employment opportunities for those who complete their certification.

Looking to the future, research from a number of organizations suggests that more than two-thirds of all new jobs over the coming decade and beyond will be in occupations usually requiring postsecondary education. Taking these projections as a guide, a reasonable target is that 70% of new labour force entrants should possess a PSE credential.

Current data sources do not allow us to calculate the share of young people who complete a postsecondary credential. It appears that about three-quarters of Ontarians aged 20–24 either hold or are pursuing a postsecondary credential; however, this figure overstates the eventual level of attainment, since it makes no allowance for drop-outs, and it double-counts students who have completed one credential and are pursuing another.

While current levels of participation are high, achieving a target that 70% of new labour force entrants should possess a PSE credential will require policy attention in at least four areas:

- Future incremental demand for PSE will come disproportionately from persons in traditionally under-represented groups. Continuing and expanded efforts will be required to attract these individuals to PSE and provide conditions for success once enrolled.
- The mix of PSE credentials – for example, baccalaureate degrees, graduate degrees, diplomas, and apprenticeship certifications – will be important and requires closer consideration.
- Projected demand for PSE places, especially in the Greater Toronto Area (GTA), exceeds what existing colleges and universities are likely to be able or willing to supply. There will be a need to decide how to accommodate this increased demand.
- Ontario is not alone in recognizing the importance of PSE in achieving broad economic and social objectives. Ontario will face ever-stiffening competition if it wishes to remain among the leading jurisdictions with respect to PSE attainment.

Accessibility

The broad goal for accessibility is that PSE opportunities should be open to all Ontarians with the potential to use them to advantage.

Equal access is clearly desirable on equity grounds. It also is linked to the goal of high educational attainment: the province needs to increase representation of traditionally under-represented groups if it is to meet aggregate targets for a well-educated workforce.

The most current data confirm that the goal of equal access is not yet being achieved for some demographic groups:

- Individuals from the highest income families are more likely to opt for PSE in general, and university in particular, than those from lower income families. For instance, in 2003, 46% of 19 year olds from the highest income quartile had pursued some university studies compared to 25% from the lowest income quartile. Youth from high-income families are also more likely to attend college, although the disparity is much smaller.
- Young women are now more likely to go on to postsecondary education than young men, although there are significant variations by program.
- There is relatively little research into access to PSE for persons with disabilities, in part because of the challenge in defining the term. The existing evidence suggests that persons with disabilities who pursue PSE tend to do so through colleges more than through universities.
- First generation students – that is, students whose parents did not complete PSE – face significant challenges to PSE participation.
- Aboriginal participation rates have increased over time but are still substantially below those for non-Aboriginals, particularly for university attendance. Aboriginals who live in large cities have a much higher PSE attainment rate than those who live on reserves.

- Overall participation patterns for most racial minority groups are comparable to or higher than the provincial average, but exceptions remain.
- Students from two-parent families are more likely to go on to postsecondary education, although participation from single-parent families is rising. Students with dependent children, particularly single parents, are less likely to complete PSE.
- Individuals who do not live within commuting distance of a university or college are less likely to attend than those who live nearer.

There is considerable overlap among these categories. For example, families where neither parent completed PSE, families in remote areas, and families on Aboriginal reserves are all statistically more likely to have lower incomes than the general population, making it difficult to sort out the significance of each factor. Demographic characteristics may also overlap with non-demographic factors such as parental expectations.

More research is required to assess the reasons for under-participation and to provide advice on policy responses. In some cases the most important response will be through financial tools such as tuition policy, loans, grants and tax credits. Financial supports for students have been in place for several decades and have been expanded in recent years. A review of current research has found that, at existing levels of tuition and with existing student aid programs, financial barriers are less important than non-financial barriers in explaining inequality of access. These non-financial barriers may include low parental or societal expectations and inadequate academic preparation. HEQCO's future research will focus equally on identifying financial and non-financial barriers to PSE participation and will explore policy options for addressing them.

Educational Quality

The Government has set a goal that Ontario's PSE system should achieve the highest standards in teaching, research and student learning experience, resulting in the skills and innovation that will support economic growth. For purposes of analysis, this expectation might be seen as embracing three specific expectations:

- That there should be high quality teaching and learning in colleges and universities;
- That qualified and motivated students should complete PSE credential requirements in a reasonable period of time; and
- That program options should be appropriately responsive to the province's labour market needs.

High Quality Teaching And Learning

Learning quality is most usefully defined in value-added terms. Colleges, universities and apprenticeships admit students who already possess varying degrees of knowledge and skills. When these individuals graduate, it is hoped that they have both deepened and widened their knowledge. The greater the knowledge and skills that students possess upon leaving compared with that which they brought with them from secondary school, the greater is the value added by colleges, universities and apprenticeships.

To understand the teaching and learning process requires a knowledge of students' entering characteristics, the resources that are deployed for teaching and learning, students' knowledge and abilities when they leave PSE, and how students fare as they enter the workforce and pursue other life goals.

One aspect of quality is the resources available for teaching and learning. The most recent interjurisdictional data show that Ontario lags behind the Canadian average in total funding per student (from government grants, tuition and other sources) for universities and colleges. Ontario also lags behind the United States in university funding (comparable college figures are not available). These data do not take into account the Ontario government's *Reaching Higher* investments.

Quality is also affected by how resources are deployed. Indicators that measure perceptions of students' postsecondary experience – such as student and graduate satisfaction surveys – show that Ontario's universities compare favourably to those in other provinces. No comparative data are available for colleges; however, satisfaction among Ontario college students and their employers has been fairly stable over the past decade.

There is considerable research to suggest that student engagement – that is, the time and energy students devote to educationally purposeful activities – is the single best predictor of learning and personal development. The adoption of annual student engagement surveys by all Ontario PSE institutions is providing significant new evidence about educational quality at universities and is expected to do so for colleges as well.

In the university sector, the National Survey of Student Engagement (NSSE) provides benchmark scores for five areas that are deemed important for effective educational practice: Level of Academic Challenge, Active and Collaborative Learning, Student-Faculty Interaction, Enriching Educational Experiences and Supportive Campus Environment.



Data from NSSE show that, on average, Ontario universities perform on a par with their US counterparts on three of the five measures, but are well behind on two others: Active and Collaborative Learning, and Student-Faculty Interaction. This gap holds true for both first year and fourth year students. It holds true for Ontario universities as a group, and it also holds true for a more closely-matched sample of six research-intensive Ontario universities and their United States peers.

The need to move towards more active and collaborative approaches to learning was confirmed by research presented at a conference on university teaching and learning sponsored by HEQCO in 2008. The research shows that when faculty teach in traditional ways, students tend to adopt surface-learning strategies. When faculty teach in non-traditional ways, students tend to adopt deep learning strategies. Deep learning strategies result in better short-term retention, improved understanding, and more expert approaches to learning. There is much that faculty can

do in support of deep learning through enhanced lectures and effective assessment practices. Yet the majority of faculty teach in traditional ways, resulting in system-wide learning deficits.

HEQCO is continuing to work with interested researchers to develop an understanding of how to identify and implement effective teaching and learning practices in Ontario's colleges and universities. HEQCO is also supporting an extensive effort to develop effective platforms for researchers and practitioners to access, share, extend and mobilize knowledge on exemplary teaching and learning.

Data comparable to the NSSE data for universities are not yet available for Ontario colleges. The current survey used to measure student engagement in Ontario colleges is the Ontario College Student Engagement Survey (OCSES). HEQCO is working with the college sector and Ministry of Training Colleges and Universities (MTCU) to determine the most appropriate measure of student engagement and/or learning quality for Ontario colleges.

Postsecondary Completion

Another aspect of academic quality is whether students complete their programs and graduate within a reasonable time.

Colleges and universities are required to report their graduation rates each year.

- Colleges report the rate based on the proportion of students who complete one-year programs within two years, two-year programs within three years, three-year programs within five years and degree programs within seven years. The average graduation rate for Ontario colleges as reported in the 2006–07 Key Performance Indicator (KPI) survey is 64.9%.
- The university graduation rate is the percentage of first year students entering bachelor's or first degree professional programs who complete the requirements within seven years. The reported weighted average graduation rate for universities is 75.6%.

Much work is required to improve these data so they can be used for policy purposes. Research in Canada and elsewhere shows that many students do not follow a linear path from enrolment to graduation. Students may change programs, change institutions, or temporarily leave their studies before eventually returning to graduate. Reporting graduation rates on a single-institution basis may obscure these patterns. Research is also required to distinguish the effects of student characteristics from the effects of institutional efforts. This research will provide the basis for assessing how Ontario compares to other jurisdictions and whether current performance can be improved.

Responsiveness To Labour Market Needs And Career Goals

It is well established that postsecondary graduates as a group achieve higher employment rates and better earnings than those who do not attend PSE. Recent research has found that, over the past two decades in Canada, the earnings and employment gap between occupations that normally require PSE and occupations that do not has been fairly constant. In other words, the strong rise in demand in high-skilled occupations has been adequately supplied – but not oversupplied – by the growing number of well-educated workers.

Despite current short-term conditions, demand for labour in Ontario is expected to grow over the coming decade, while the labour supply is projected to grow relatively more slowly as a consequence of an aging population and lower levels of immigration. Labour market projections have limitations, but it is still important to investigate the extent to which Ontario's PSE program offerings are aligned with the province's labour market needs.

Two topics deserve particular attention. The first is to understand more about how students choose among sectors, institutions and programs, and specifically the extent to which expected labour market outcomes affect these decisions. The second is to examine the processes whereby colleges and universities set enrolment levels by program, and in particular how they adjust these over time in response to student demand and other factors. Both of these topics will be research priorities for HEQCO.

System Design

The rising expectations for Ontario's PSE system raise the question whether the system will be able to meet these expectations. There is a need to determine what changes are required in the next 10–15 years if Ontario's colleges and universities are to accommodate many more students, appeal more to persons from traditionally under-represented groups, and provide top-quality training and education.

There is considerable interest currently in how the PSE system, as a system, might be re-designed to help meet the challenges noted above. The implicit assumption behind this thinking is that there are some significant gaps in the current system because of how it was designed and how it has evolved, and that filling these gaps is a necessary part of achieving broader PSE objectives. Two aspects of system design are examined: inter-institutional collaboration and increased mission differentiation within the college and university sectors.

Inter-institutional Collaboration

Ontario's PSE system was not designed to support significant movement of students from college to university or vice versa. Yet many examples of voluntary inter-institutional cooperation have arisen, supported in some cases by government capital funding. In addition, many students are finding their own pathways between the two sectors. About one-quarter of recent college graduates reported that they were pursuing additional education, and of this group, one-quarter were attending university. About one-third of recent university graduates were pursuing additional education, and of this group, one-eighth were attending college.

Further analysis is required to determine whether inter-institutional collaboration can contribute to achieving the province's PSE goals, and if so, what the costs and benefits are compared to other options. For example, collaborative efforts may enhance PSE participation, particularly by students from traditionally under-represented groups. They may provide students with geographically accessible study options in areas that would otherwise be under-served by PSE institutions. Additionally, they may facilitate access by providing students who might not otherwise be qualified for university to register first in a college program designed specifically to foster the academic competencies necessary to pursue a university education.

Collaborative programs may also enhance educational quality. This potential is particularly relevant in instances where learning outcomes require specialized knowledge or equipment that

cannot be supplied by a single institution. In some cases universities and colleges have created programs combining theoretical and applied knowledge that neither institution could have offered alone.

Collaborative efforts are not without cost. Research conducted for HEQCO has noted the transaction costs of identifying, negotiating and administering the arrangements, as well as the significant risks to the collaborating partners if the collaboration does not succeed. These costs and risks tend to limit the number of voluntary collaborations. As well, Ontario's preference for voluntary collaborations is different from the system-wide approaches to transfer between institutions that are found in many other jurisdictions.

A complete evaluation of collaborative arrangements would compare the educational and other benefits of such arrangements to the costs of implementing and operating them on an ongoing basis.

Institutional Differentiation

A distinctive feature of Ontario's PSE system is that there is relatively little differentiation of missions within each of the university and college sectors.

When colleges were established in the 1960s, there was no attempt to introduce variation in institutional missions. Such differences as did develop are largely explained by unique local environments and circumstances. Some forms of differentiation have been introduced more recently to serve the francophone population, and to permit some colleges to offer a higher share of programs leading to four-year degrees in applied fields of study.

Ontario's universities have generally been allowed to develop their own missions. The incentives created by federal and provincial funding in the last decade have tended to narrow differences in declared missions according to some observers. All universities have shown a commitment to expanding research and graduate education.

The growing demand for admission to university, restrictions on the abilities of colleges to offer baccalaureate programs, and the universities' commitment to research and graduate education, have led some observers to conclude that there are significant gaps in Ontario's PSE system – gaps that can only be filled by creating new types of PSE institutions with a stronger focus on four-year baccalaureates. Some colleges have proposed to become polytechnic institutions, with a larger number of four-year degree programs and an enhanced role in applied research. Research conducted for HEQCO has identified other potential gaps to be filled, including the lack of universities whose primary mission is undergraduate education, or an open university that would facilitate degree completion for working-age adults who in some cases may already hold credits from a traditional university or college.

New types of PSE institutions are not an end in themselves, but should be evaluated based on how they would address the growing expectations for the PSE system. Would they create more overall PSE capacity, particularly in the GTA? Would students from traditionally under-represented groups find it easier to gain admission and to complete their programs? Would the quality of teaching and learning be enhanced? Would the education and skills of graduates be better aligned with labour market needs? Would transfer pathways be expanded?

Even if the answer to each question is positive, there is a further step. The benefits of addressing these challenges in this manner must be set against the costs, both financial and non-financial. Will additional resources be required? How would other PSE institutions be affected?

To date, the case has not been made for how new forms of higher education would address the PSE sector's challenges. However, these options will be considered in HEQCO's on-going system design research.

Accountability

Universities and colleges are accountable to several audiences, including their internal constituencies, their students and prospective students, and the governments that provide funding to them. The government has determined that targets and measures should be set to monitor the quality and performance of the postsecondary education sector.

Developing an improved accountability framework for PSE in Ontario has been a special priority for HEQCO. Based on an assessment of accountability practices in Ontario and other jurisdictions, this report concludes that such a framework should have these key features:

- The framework should first clearly identify government objectives for the PSE sector, define appropriate performance indicators and set sector-wide targets for each goal.
- The framework should identify performance measures and establish targets for these variables for each college and university. Agreements would be established after consultation between MTCU and institution officials, and would be multi-year to allow for long-term planning. The performance measures would be few in number, employ common definitions across the sector and be based on reliable data. Institution-specific targets would reflect unique institutional missions and visions and represent agreement on what is achievable in the current PSE environment.
- Where relevant, the sum of targets set for individual institutions should be consistent with the aggregate target as established by the government.
- The framework should contain an *ex post* indication of performance relative to targets for both the system as a whole and for individual institutions. The reporting of performance relative to targets can be quantitative but the evaluation would be more qualitative.
- The framework should be constructed in a manner that supports purposeful action by both institutions and government to achieve goals and targets. That is, the framework must be clear on where responsibility lies for initiating next steps as required, and must set out the process to be followed. There must be a clear and predictable link between performance and funding or regulations. The framework must contain binding commitments by the government as well as by institutions.

This approach to accountability builds on the approach taken in this report: it sets out broad government goals; it identifies possible performance indicators for each goal and indicates where data are available and where new information will need to be developed; it emphasizes the importance of standardizing performance indicators for systematic variations in student and

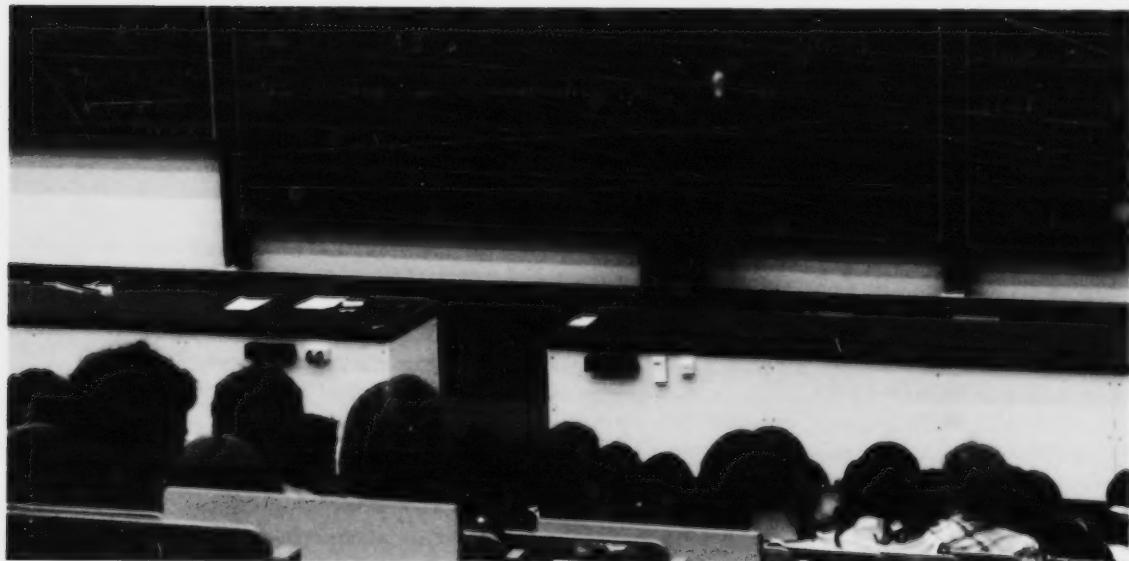
institutional characteristics; and it indicates the important roles played by institutions and by governments in achieving those goals.

Research priorities

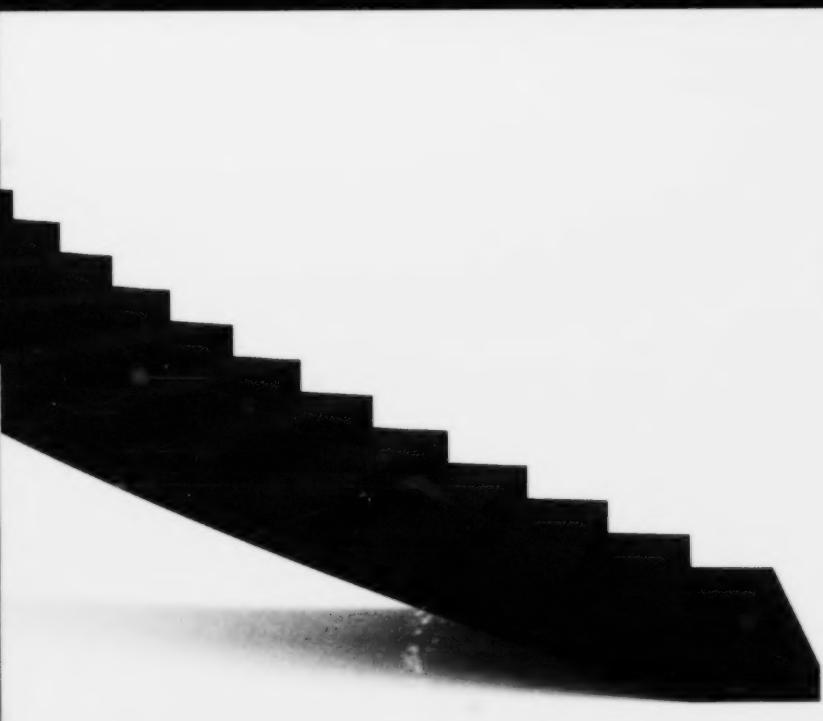
This research shows that considerably more is known about the challenges facing PSE than about how to address them. Future work must focus on identifying policy options and assessing their relative effectiveness.

HEQCO's work plan is constantly evolving to address the unanswered questions. Key projects for the next 18 months include:

1. Mining existing data sources to provide a more complete empirical overview of PSE participation and attainment.
2. Developing a better understanding of two relatively neglected types of PSE: adult education (life-long learning) and apprenticeship training.
3. Producing estimates of PSE participation rates for traditionally under-represented groups through survey or other techniques.
4. Identifying and assessing barriers to PSE from an Ontario perspective, with particular attention to non-financial barriers.
5. Sponsoring interventions in colleges and universities to test the relative effectiveness of policies designed to address barriers to PSE participation and persistence.
6. Developing a fuller understanding of the ability of engagement surveys to serve as indicators of learning outcomes in colleges and universities.
7. Evaluating the effectiveness of Ontario's quality assurance processes.
8. Sponsoring interventions to evaluate alternative approaches to teaching and learning.
9. Developing ways to mobilize existing knowledge about effective teaching and learning practices.



10. Evaluating the effectiveness of student service programs and identifying promising practices.
11. Evaluating the ability of the PSE system to respond appropriately to the province's labour market needs.
12. Providing a more complete account of PSE pathways and explaining student choices to switch programs, institutions or sectors.
13. Providing a preliminary analysis of proposals to deal with the GTA capacity challenge.
14. Outlining a multi-year accountability framework for Ontario PSE.
15. Providing detailed analyses of potential performance indicators for inclusion in a multi-year accountability framework.
16. Developing a fuller understanding of the effect of tuition and student financial assistance policies on student participation, particularly in relation to professional programs and the Student Access Guarantee.



Preface

This is the Higher Education Quality Council of Ontario's *Second Annual Review and Research Plan*. The first report, issued in July 2007, interpreted HEQCO's mandate in the form of three framework questions:

- What should Ontarians expect from the postsecondary education (PSE) sector?
- How well is the sector meeting these expectations?
- Where outcomes fall short of expectations, how can the sector's performance be enhanced?

Review and Research Plan (R&R) 2007 submitted that there is a broad consensus on general expectations for the PSE sector, namely:

- It will be accessible to all qualified and interested students
- It will provide students with quality learning opportunities
- It will be accountable
- There will be cooperation between and among PSE institutions

As a first step in evaluating the sector's performance, *R&R 2007* reviewed what we know about the sector and what we need to know for each of these themes. This background then informed research priorities and the work plan for 2007–08 to 2009–10.

The *Second Annual Review and Research Plan* builds on the previous document in a number of ways.

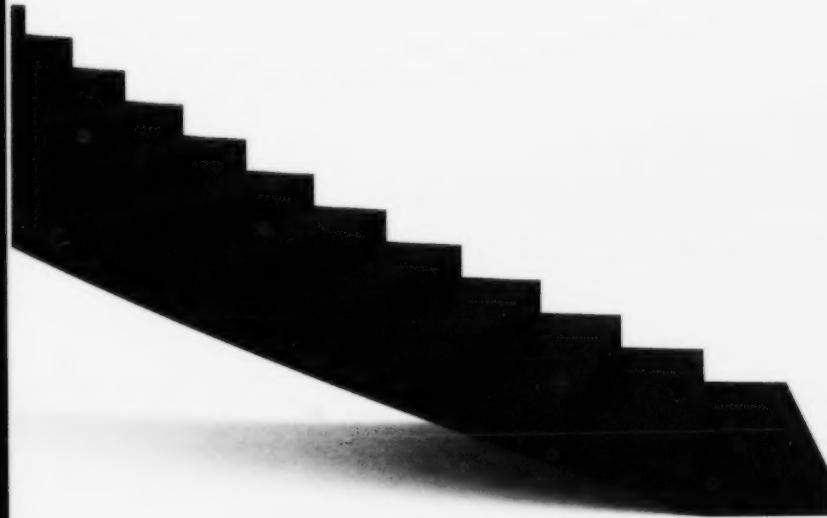
1. It extends and refines general expectations of the sector:
 - It extends the discussion of PSE participation to include a second general goal, namely that the province is able to meet its future human capital needs. That is, we

turn our attention to “how many go” as well as “who goes”. This expansion means focusing on aggregate PSE participation as well as on how these opportunities are distributed within the population.

- It refines expectations with respect to educational quality. The objective that students in colleges, universities and apprenticeship programs have high-quality learning experiences is extended in two ways: (1) that registrants are able to complete their programs in a reasonable period and (2) that program opportunities are appropriately responsive to labour market needs.
- Accountability is viewed from three perspectives. The first accountability relationship is that between individual institutions and their internal stakeholders. The second is that between the sector as a whole and the general public, in particular potential students. The third is the relationship of colleges and universities with the Ontario government as represented by the Ministry of Training, Colleges and Universities (MTCU).

2. It employs an explicit four-part approach to evaluating the sector’s performance relative to expectations. The first step is to translate general expectations into specific metrics and targets. These metrics and targets are quantitative where feasible and appropriate, and qualitative otherwise. The second step is to evaluate performance against these targets. This objective means both determining how the province is faring and then understanding as much as possible about the factors behind the performance. The third step, when performance is falling short of expectations, is to identify and explore policy options. The final step, where feasible and appropriate, is to make policy recommendations.
3. It features more in-depth reviews of existing knowledge on the determinants of PSE performance and identifies salient gaps in our understanding. These gaps are then linked to current and future research priorities.
4. It pays explicit attention to supply-side factors and issues of system design in evaluating performance, exploring policy options and framing policy recommendations. PSE sector expectations will only be met if colleges and universities are capable of responding to them and motivated to do so in an efficient and effective manner. The fourth theme from R&R 2007 – inter-institutional collaboration – is subsumed in this more general discussion of system design considerations.

The *Second Annual R&R* is organized as follows. Chapter 1 focuses on aggregate PSE participation and educational attainment, while Chapter 2 examines issues of accessibility. Chapter 3 is concerned with educational quality. Chapter 4 focuses on the supply side and in particular on issues of system design. Chapter 5 deals with accountability. Chapter 6 provides a brief conclusion.



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Chapter 1: Participation and Educational Attainment

The first broad goal for Ontario postsecondary education (PSE) is that the province should have the appropriate degree of educational attainment to meet its current and future human capital needs. This goal is most frequently cited when discussing how to maintain and enhance the province's competitive position in a rapidly-changing global economy, but it also reflects recognition of the positive association of education with social cohesion and personal well-being. In support of this goal, *Reaching Higher* (Government of Ontario, 2005) unveiled plans to significantly increase enrolment rates in colleges and universities, including graduate education, and to increase the number of apprenticeship entrants.

This chapter focuses on Ontario's human capital needs. Specifically, can Ontarians be confident that the PSE system will meet the province's future needs for a skilled and educated population? We look first at the challenge the province faces in this regard, then at current educational attainment and finally at future prospects.

1.1 The Challenge

The role of PSE in enhancing economic growth and prosperity and in promoting broader civil society goals has received much attention in recent years. The clear consensus is that education and training are essential to achieving both goals.

The basis for stressing a link between education and economic growth in Canada comes from both past experience and current forecasts. Table 1.1 shows that between 1990 and 2007 the number of jobs filled by university degree holders more than doubled, from 1.9 million to nearly 4 million. The number filled by those with a postsecondary education certificate or diploma grew by 71% over the same period, representing the largest absolute increase. There were slight gains for those with some postsecondary education (9%) and for high school graduates (15%). By comparison, there were over 1.3 million fewer jobs held by persons with less than a high school education.

Table 1.1

Employment Levels by Highest Level of Educational Attainment, 1990 and 2007 (thousands)

Educational Attainment	1990	2007	Change	Percentage Change
0 to 8 Years of Education	964.9	431.3	-533.6	-55.3
Some High School	2528.1	1748.2	-779.9	-30.8
High School Graduate	2978.2	3432.1	453.9	15.2
Some Postsecondary	1272.7	1386.9	117.2	9.2
Postsecondary Certificate or Diploma	3447.9	5907.0	2459.1	71.3
University Degree	1894.6	3961.0	2066.4	109.1

Source: Statistics Canada, *Labour Force Survey*, Table 282-0004

Forecasts of future labour market needs foresee an even greater need for PSE. A report by Human Resources and Social Development Canada (HRSDC) projects that more than two-thirds of all new jobs between 2005 and 2015 are expected to be in occupations usually requiring postsecondary education (Lapointe, Dunn, Tremblay-Côté, Bergeron & Ignaczak, 2006, p. 41). Specifically, HRSDC predicts that there will be an increase of 1.6% per year in the number of jobs requiring a university degree and an increase of 1.1% per year in those requiring college credentials. By comparison, the number of jobs requiring a high school diploma will increase by 0.9% per year while those needing only on-the-job training will increase by only 0.6% per year.¹

A recent report by the Conference Board of Canada focuses on Ontario's future labour force requirements. The report projects a potential labour shortage of 190,000 workers in 2020, rising to 364,000 by 2025 and to 564,000 by 2030 (Conference Board of Canada, 2007, p.10). The authors indicate that this large and growing labour shortage will need to be addressed by a general rise in the educational attainment of the existing population, particularly by traditionally under-represented groups, and by increasing labour force participation rates.

The Task Force on Competitiveness, Productivity and Economic Progress and its research arm, the Institute for Competitiveness and Prosperity, measure and monitor Ontario's competitiveness compared to other provinces and US states. A constant theme in their research and reports to the public is the need for the province to invest more in postsecondary education (Institute for Competitiveness and Prosperity, 2008).

Canadian estimates are matched by those of other nations. In the US, for example, researchers estimate that 70–90% of jobs created will require postsecondary training of some kind (Gladieux & Swail, 1999).

Labour market considerations are not the only reason to stress PSE attainment. There is considerable evidence to suggest that there are significant social benefits as well. For instance, education tends to be associated with better personal health and well-being, lower crime rates, higher rates of charitable giving, greater civic engagement and enhanced toleration of other groups and cultures (Riddell, 2007).

1 See also Ontario Budget Backgrounder (Ministry of Finance, 2008); Canadian Council on Learning (2006, p. 3).

The importance that the Ontario government attaches to PSE attainment in *Reaching Higher* and related policy initiatives is obviously well-founded. The province legitimately aspires to maintain and enhance its economic standing in the dynamic global economy and to provide residents with the non-economic benefits that education affords. To achieve these goals, human capital needs must be met. The extent of this challenge is usefully addressed by posing a two-part question:

- How well positioned is the province currently with respect to its stock of human capital?
- Will the stock change at a rate sufficient to meet expected future needs?

1.2 Current Educational Attainment

One common measure of the stock of human capital is the proportion of the total population with PSE credentials. A more refined measure, given the focus on labour force needs, is the proportion of the working-age population in a position to have attained PSE credentials. There is no obvious lower bound to this cohort, although age 25 is commonly used. Likewise, there is no longer an obvious upper bound given the end of mandatory retirement, although age 64 is still commonly used.

Table 1.2 shows the percentage distribution of the highest level of educational attainment for the population aged 25–64 for Canada and for the provinces and territories in 2006. The data are from the 2006 census.

Ontario ranks first among the provinces and territories in terms of the percentage of the population aged 25–64 with a university certificate, diploma or degree at the bachelor's level or above, with 26% compared to 24.1% for the next-highest province, British Columbia. Ontario ranks fifth in terms of the percentage of the working age population with a university certificate or diploma below the bachelor's level, trailing British Columbia, Quebec, Manitoba and Saskatchewan. Combining the university categories, Ontario leads slightly with 30.7% of the population with some university certification, followed closely by British Columbia at 30.2%.

Ontario falls in the middle of the pack in terms of the percentage of the population reporting a college or other non-university certificate or diploma as their highest level of educational attainment. Prince Edward Island and Yukon are the leaders in this category at 24.3%, followed by Northwest Territories at 23.7%, Newfoundland and Labrador at 22.2% and Ontario and Nova Scotia at 22%.

The major difference lies with apprenticeships or trades certificates or diplomas, where just 8.8% of the Ontario population aged 25–64 report these credentials as their highest educational attainment compared to 12.4% for Canada overall. Ontario ranks last of 13 jurisdictions in this category. Quebec is the leader at 18.1%, followed by Newfoundland and Labrador at 14.8%.

Table 1.2

Highest Level of Educational Attainment, Population Aged 25–64, Canada, Provinces and Territories, 2006 (percentage)

	No certificate, diploma or degree	High school certificate or equivalent	Apprenticeship or trades certificate or diploma	College, CEGEP or other non-university certificate or diploma	University certificate or diploma below bachelor level	University certificate or degree at bachelor's level or above
Canada	15.4	23.9	12.4	20.3	5.0	22.9
NL	25.7	19.6	14.8	22.2	3.8	14.0
PEI	18.7	23.7	11.8	24.3	4.0	17.5
NS	18.6	20.9	13.9	22.0	4.4	20.2
NB	21.0	25.8	12.4	21.3	3.5	16.1
PQ	17.1	21.1	18.1	17.5	5.4	20.8
ON	13.6	25.0	8.8	22.0	4.7	26.0
MB	20.4	25.4	11.3	18.7	4.8	19.4
SK	19.4	26.7	13.7	18.5	4.8	17.1
AB	15.4	24.1	12.4	21.5	4.6	22.0
BC	12.4	25.9	12.0	19.6	6.1	24.1
YT	15.3	21.2	13.1	24.3	3.8	22.2
NWT	23.0	18.5	11.5	23.7	3.2	20.0
NV	46.0	10.3	9.3	19.3	2.3	12.8

Source: Statistics Canada, 2006 Census of Population, catalogue no. 97-560-XWE2006002

Ontario is apparently well situated within Canada with respect to current PSE attainment, but how does this record compare to those for other advanced economies? Unfortunately this question is not easily answered. Organization for Economic Co-operation and Development (OECD) data on educational attainment show that Canada leads all other jurisdictions in the share of the population aged 25–64 with either a college or a university credential. Fully 46% of Canadians fell into this category in 2006, well ahead of second-place Japan at 40% and third-place US at 39% (OECD, 2007, p. 38). Given Ontario's relative position within Canada, the province might thus appear to be among the world leaders in PSE attainment.

Canada's (and hence Ontario's) international ranking varies by type of credential, however. The OECD data show Canada in a tie for sixth place with Australia and Korea among member countries in the proportion of the population aged 25–64 with a university degree (Statistics Canada, 2008, p. 11). Norway and the US lead the group at 30%, followed by Netherlands at 28%. Ontario's figure of 26% (Statistics Canada, 2008, p. 28), reported in Table 1.2, places it in a tie for fourth spot with Denmark and Iceland. A university degree is a similar credential internationally, so these figures are likely to be a reasonable indicator of Ontario's relative position.

Canada's apparent overall lead in PSE attainment comes from the proportion of the population reporting non-university credentials. Indeed, these OECD data show that Canada

has about three times more postsecondary non-university graduates than is the case for other OECD countries (Association of Universities and Colleges of Canada (AUCC), 2007, p. 22). The apparent gap between Canada and other countries with respect to college attainment is large enough to have led observers to question the comparability of the underlying data. The most likely explanation for the discrepancy is that the Canadian data do not allow for a clear distinction between postsecondary non-tertiary education and tertiary-type B (i.e. college) education. As a result, the Canadian data submitted to the OECD for tertiary-type B education are possibly inflated (Canadian Education Statistics Council, 2007, p. 113).

Statistics Canada is working to make the Canadian data more comparable, and until this project is completed it is unwise to draw any conclusions about Ontario's relative position with respect to non-university PSE attainment.

1.3 The Contribution of In-Migration

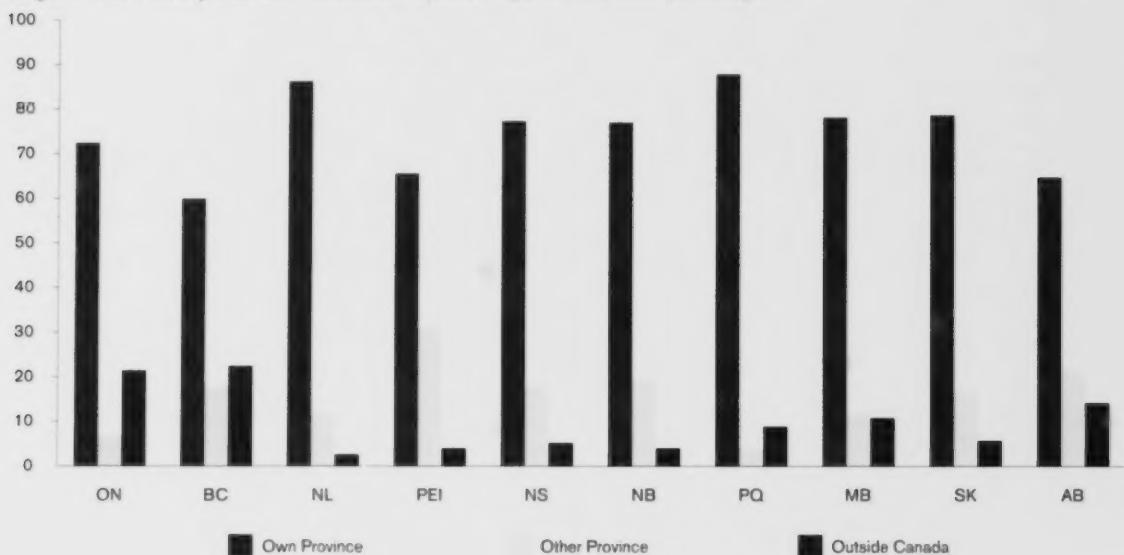
Before moving on to examine future prospects, it is useful to pause briefly to examine the basis of Ontario's PSE profile. The province undoubtedly owes its record in part to the achievements of its own PSE sector, but the success is not all home-grown. The favourable standing stems in part from Ontario's traditional position as a receiving destination for international and inter-provincial migrants. Since the mid-1960s, Canada's immigration system has deliberately targeted those with PSE credentials, and a large proportion of these new arrivals settled in Ontario. In addition, inter-provincial migrants tend to include a disproportionate number of individuals with education and training.

Figure 1.1 shows the location of study by province for those aged 25–64 with a postsecondary certificate, diploma or degree in 2006. Not unexpectedly, most studied in their home provinces. However, there is a striking provincial variation in the proportion of residents who obtained their education in other provinces or outside Canada. Ontario ranks seventh in terms of the proportion of those with PSE credentials who received them within the province. Other than Quebec, Ontario is also the least dependent on persons who obtained their standing in other provinces. The striking difference is the relatively large proportion of those who obtained their credentials outside Canada – over 21% in Ontario's case. Only British Columbia has a higher proportion in this category than Ontario and the difference between these two provinces and the others is significant. This category includes Ontarians and other Canadians who studied abroad and have settled in Ontario, but mostly it reflects immigrant flows.

Table 1.3 shows the highest educational attainment for the Ontario population aged 25–64 by immigration status. Immigrants are significantly more likely than non-immigrants to have university degrees or certificates at the bachelor's level or above – 31% versus 23% respectively. This difference carries over into the population with university certificates or diplomas below the bachelor's level, where the proportion of immigrants with these credentials is more than double that for non-immigrants. The pattern is reversed for those with college or other non-university certificates or diplomas, and for those with apprenticeship or trades certificates or diplomas. The profile for non-permanent residents is even more marked, reflecting the lure of Ontario universities in particular for international students.

Figure 1.1

Origin of Postsecondary Education Credentials, Population Aged 25–64, 2006 (percentage)



Source: Statistics Canada, 2006 Census of Population, catalogue no. 97-560-XCB2006024

Table 1.3

Highest Level of Educational Attainment, Ontario Population Aged 25–64, by Immigrant Status, 2006 (percentage)

Educational Attainment	Total	Non-immigrants	Immigrants
No certificate, diploma or degree	13.6	13.3	14.1
High school certificate or equivalent	25.0	26.8	21.7
Apprenticeship or trades certificate or diploma	8.8	9.1	8.2
College, CEGEP or other non-university certificate or diploma	22.0	24.6	17.4
University certificate or diploma below the bachelor level	4.7	3.3	7.2
University certificate or degree	26.0	23.0	31.4

Source: Statistics Canada, 2006 Census of Population, catalogue no. 97-562-XCB2006011

Figure 1.1 and Table 1.3 are a reminder that migration and immigration are important aspects of Ontario's PSE policy environment. This effect extends beyond the contribution of the immigrants themselves to Ontario's stock of human capital. A recent Statistics Canada paper (Abada, Hou & Ram, 2008) shows that Canadian-born children with at least one immigrant parent and foreign-born children who immigrated to Canada before age 13 have significantly higher university completion rates than children of Canadian-born parents. The rates vary markedly among immigrant groups but none is significantly less than for children of Canadian-born parents.

1.4 Prospective Educational Attainment

The discussion thus far is essentially backward-looking as it reflects past educational achievements by Ontarians and those relocating from other provinces and countries. The relevant question from a forward-looking perspective is whether Ontario will be able to maintain this favourable position by adding to its stock of human capital at a rate sufficient to meet its future needs.

What is a reasonable PSE attainment target for Ontario for the next decade and beyond? One obvious criterion is that the province must be able to meet its projected future labour force requirements. Taking the HRSDC projections cited above as a guide, a reasonable target is that 70% of new labour force entrants should possess a postsecondary education credential. A second, and related, criterion is that Ontario should continue to have a stock of human capital that is among the highest of the provinces and that compares favourably to those in other advanced economies.

Ontario's future human capital will come from three sources: (1) Ontarians newly entering the labour force, (2) inter-provincial and international migrants and (3) educational upgrading (life-long learning) by those already in the workforce.

1.4.1 New Labour Force Entrants

The largest contribution to the province's stock of human capital will come from Ontarians entering the labour force for the first time. There is no obvious age range that best captures this group, although the cohort aged 20–24 is often used. This is also the obvious choice given the focus on the population aged 25–64 in the previous section.

It is useful to divide this cohort into two groups: those who already have PSE credentials and those still in the process of acquiring them. There is a possible overlap of course, as some individuals in the second group will be adding to credentials already acquired.

PSE Credentials Completed

Table 1.4 shows the highest level of certificate, diploma or degree for those aged 20–24 in 2006 for Canada and the provinces. Not surprisingly, given the age range involved, a significant proportion of this group – nearly half – reports a high school certificate or equivalent as the highest educational attainment. Just over 18% of Ontarians in this age group already report a college credential, reflecting the relatively shorter lengths of these programs. Nearly 15% report a university certificate or degree at the bachelor's level or above, while nearly 4% report university credentials below the bachelor's level. Just under 4% report apprenticeship certification, which is not surprising given the time it normally takes to complete these programs. All

told, over 40% of Ontarians aged 20–24 in 2006 were already in possession of some form of postsecondary education or training.

Table 1.4

Highest Level of Educational Attainment, Population Aged 20–24, Canada, Provinces and Territories, 2006 (percentage)

	No certificate, diploma or degree	High school certificate or equivalent	Apprenticeship or trades certificate or diploma	College, CEGEP or other non-university certificate or diploma	University certificate or diploma below bachelor level	University certificate or degree at bachelor's level or above
Canada	13.8	42.9	7.3	19.3	3.8	12.9
NL	17.1	47.0	6.5	14.3	3.1	12.0
PEI	10.8	48.1	5.6	16.2	3.7	15.5
NS	12.9	45.8	5.9	13.8	3.9	17.7
NB	12.5	48.9	6.3	17.0	2.6	12.7
PQ	15.2	25.7	14.8	29.5	3.8	11.0
ON	11.6	48.0	3.8	18.2	3.8	14.6
MB	21.5	48.0	5.0	11.7	2.5	11.2
SK	18.3	49.3	7.3	12.7	2.6	9.8
AB	17.4	45.9	7.2	15.3	3.1	11.2
BC	10.5	50.4	6.4	14.4	5.5	12.8
YT	17.9	50.1	6.7	13.6	3.2	8.5
NWT	34.8	35.3	5.1	14.9	2.9	6.9
NV	65.2	21.3	3.7	7.6	0.4	1.8

Source: Statistics Canada, 2006 Census of Population, catalogue no. 97-560-XCB2006007

Table 1.4 indicates that Ontario fares relatively well on a comparative basis. It ranks third among provinces in the percentage of the population aged 20–24 with a university certificate or degree at the bachelor's level or above, trailing only Nova Scotia and PEI. It is in a three-way tie for third place for those with university certification below the bachelor's level, behind British Columbia and Nova Scotia. Setting aside Quebec, with its unique CEGEP system, Ontario leads the country for youth aged 20–24 with college credentials. The striking difference again is in apprenticeships, where Ontario ranks second-last among provinces and territories.

PSE Credentials Underway

Of course, many individuals in this age cohort are still pursuing their first PSE credential. Table 1.5 shows college and university participation rates in 2006 for individuals aged 20–24 for Canada and the provinces. The participation rate in each province is calculated as the number of students aged 20–24 attending university or college, divided by the total population of 20–24 year olds.²

² The numerator includes out-of-province and out-of-country students. Thus participation rates will be inflated for provinces that experience net inflows of PSE students and conversely for those that experience net outflows.

Table 1.5 indicates that Ontario shares the lead with Newfoundland and Labrador and Nova Scotia for university participation rates, although the differences among the top seven provinces are slight. The three westernmost provinces are the outliers, with relatively low participation rates explained in part by high-paying employment prospects in buoyant resource economies. In terms of college participation, Ontario ranks first, followed closely by British Columbia and then Alberta and Quebec.

The data in Tables 1.4 and 1.5 are not strictly comparable, but putting them together suggests that over 75% of Ontarians aged 20–24 either already have a PSE credential or are in the process of obtaining one. Three caveats should, however, be noted regarding this conclusion. First, a proportion of students currently enrolled in college or university will not complete their programs, and thus the eventual stock of human capital will be lower than the 75% that the figure suggests.³ Second, there is almost certainly some double counting as a number of those reporting PSE credentials are also currently enrolled in a college or university. Third, it is important to examine the category “other non-university certificate or diploma” in order to understand better the human capital component.⁴

There are no publicly-available data on apprenticeship registrations or active apprenticeships by age, so we cannot present participation rates for this PSE category.

1.4.2 In-Migration

The second source of future human capital is that embodied in expected net new inter-provincial and international migrants. We saw above that more than one-quarter of Ontario’s stock of human capital in 2006 came from individuals who studied in other provinces and countries. The future contribution from this source depends on two factors: the size of net migration flows and the educational profiles of these migrants.

Table 1.5

College and University Participation Rates, Population Aged 20–24,
Canada, Provinces and Territories, 2006

	College	University	Total
Canada	11	25	36
NL	10	28	38
PEI	9	24	33
NS	8	28	36
NB	7	27	34
PQ	11	25	36
ON	13	28	41
MB	7	25	32
SK	5	22	27
AB	11	17	28
BC	12	21	33
YT	N/A	N/A	N/A
NWT	N/A	N/A	N/A
NV	N/A	N/A	N/A

Source: Statistics Canada and Council of Ministers of Education, Canada, 2007. *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program*. Catalogue no. 81-582-XIE. Ottawa

³ Individuals aged 25–34 in 2006 largely will have completed their formal postsecondary education. The proportion of this cohort with PSE credentials in hand was 67.5%. Given that participation rates have been rising, the projected number for the cohort aged 20–24 when it reaches the 25–34 age range will certainly be higher.

⁴ The 2006 census asked respondents about the length of study of these programs, for example, but has not yet made the data available.

Ontario consistently receives the bulk of Canada's immigration (Ontario Ministry of Finance, 2007). Over 125,000 immigrants settled in the province in 2006, and the province projects approximately 135,000 new immigrants each year in future. Similarly, Ontario has a history of attracting inter-provincial migrants. Numbers have slowed in recent years, but the provincial government still expects a net annual gain of 5,000 migrants from other provinces from 2009 onwards.

We saw in Table 1.3 that the attainment of university credentials is significantly greater for immigrants than it is for non-immigrants, although the situation is reversed for college and apprenticeship credentials. With the points system in place it is expected that immigrants will continue to arrive in Canada with advanced skill sets, thus further adding to the province's future stock of human capital at a rate at least equal to that of young Ontario PSE graduates.

The real challenge is in putting these skills to proper use. Recent research suggests that university-educated immigrants are less likely to be employed than their Canadian-born counterparts (Gilmore, 2008). This is the case for very recent immigrants in particular, although the results vary slightly by country of origin. Given the relatively large proportion of Ontario's human capital stock that falls into this category, this is a particularly salient policy issue for the province. Ontario's colleges and universities can play an important role where re-training and skills upgrading are required.

1.4.3 Life-Long Learning

The province's stock of human capital can also be enhanced through additions to PSE credentials by those already in the labour force. These contributions can come from workers completing their first PSE credential as well as those seeking to add to credentials already earned. The motive can be to improve prospects in their current positions or to switch jobs or even sectors entirely. Clearly, improving literacy levels must be an important part of the skills upgrading (Statistics Canada, 2005).

Life-long learning has not received the same research attention in Ontario as have other types of postsecondary education. Colleges Ontario (2008a, pp. 43–44) estimates that there were approximately 290,000 continuing education students enroled in Ontario's colleges in 2006–2007. The most recent survey of these students indicated that 75% were under 45 years old, that they were predominately female (65%), and that they were seeking a credential for career-related reasons (Colleges Ontario, 2008a, p. 44).

This is an area of future research activity for HEQCO. Some obvious questions worth exploring are:

- What is the potential demand for adult education in Ontario?
- How does this demand break down by type of program, geographical area, socioeconomic characteristics of students and so forth?
- What are the barriers to participation?
- What is the potential of colleges and universities to meet this demand?
- What are the appropriate policy initiatives?

1.5 Capacity Issues

There is more involved in meeting Ontario's PSE aggregate enrolment targets than just encouraging applications to colleges, universities and apprenticeship programs, however. Institutions must also be able to provide the requisite number of program places while maintaining and enhancing educational quality. There is currently considerable concern that supply-side constraints could become the determining factor in whether Ontario meets its aggregate PSE enrolment objectives in the next two decades, particularly with respect to university credentials.⁵ Ontario's population, especially of 18–21 year olds, is expected to grow slowly until 2014 and then decline, so that by 2021 the number of persons in this cohort will be about equal to its 2005 level, but this pattern will differ regionally. Continued strong immigration to the Greater Toronto Area (GTA) means that its population of 18–21 year olds is projected to grow by 15% in these years, with most of the growth happening by 2014. In the rest of the province, this cohort is expected to decline by 11%.

Translating population growth into demand for PSE depends on what assumptions are made about participation rates. One possibility is that participation will continue to grow at a rate equal to the average growth for the past nine years. If this were to occur, and assuming no change in application patterns of GTA and non-GTA students, demand for GTA universities will grow by 34–49% to 2021, or by 42,000 to 60,000 places. If the growth rate were lower, the demand for places would be correspondingly less.

Demand for spaces in the six GTA colleges will grow in future years as well, although not as dramatically. The GTA college participation rate can be defined as the number of Full Time Equivalent (FTE) enrolments in GTA colleges as a percentage of the 18–24 population in the GTA. Assuming this participation stays constant at a rate equal to the average for the past 9 years⁶, and assuming no changes in application patterns, demand for spaces in GTA colleges will grow by 20% to 2018, or by nearly 19,000 places. If the participation rate were lower, the demand for places would be correspondingly lower.

Few observers believe that GTA institutions as currently constituted will be able to accommodate an increase in demand for PSE programs of this magnitude; hence the current attention to this issue. HEQCO will work with MTCU and institutions to focus on supply-side factors in the next two years. Some obvious questions are:

- How robust are the population and participation rate assumptions?
- What are the equivalent projections for colleges?
- Will supply-side constraints alter current university application patterns by GTA and non-GTA students?
- Will supply-side constraints alter current university program application patterns?
- Will supply-side constraints alter current university vs. college application patterns?
- What options are there for adding capacity to the system?

⁵ These paragraphs draw on "Demand for University Education in the Greater Toronto Area Over the Next 5–15 Years: A Discussion Paper for Review by Ryerson University, University of Toronto and York University," February 2008, author unknown.

⁶ The participation rate is essentially constant over this period, changing from 17.4% in 1997 to 16.64% in 2006.

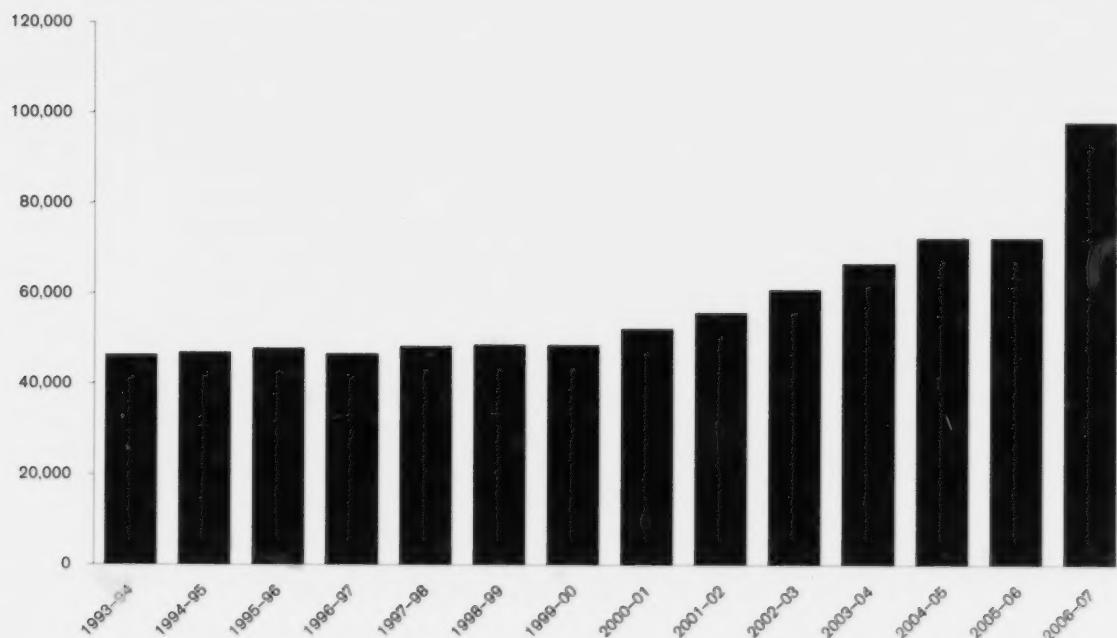
1.6 Apprenticeships

This report's focus to this point has been on college and university participation. The third component of the Ontario PSE system is apprenticeship training.⁷ Apprenticeship is broadly defined as vocational training in the skilled trades that is primarily undertaken on the job under the supervision of certified journeypersons. Apprentices are paid by their employers and receive a portion of their training in a classroom, usually through a College of Applied Arts and Technology (CAAT). On completion of their training, they write a series of exams and, if successful, are certified in their trade.

Apprenticeships in Ontario are grouped into seven general categories: building construction, electronics, food and services, industrial and related mechanical, metal fabricating, motor vehicle and heavy equipment, and other. Twenty-one trades are designated as compulsory, meaning that anyone employed in the area must be either certified or in a registered apprenticeship program.

Table 1.2 shows that there are proportionally fewer apprentices in Ontario than in other provinces. Just under 9% of Ontarians aged 25–64 report apprenticeship or trades certification as their highest level of educational attainment in 2006, compared to over 12% for Canada as a whole; nor does the situation appear to be changing, judging by the comparative figures for population aged 20–24 (Table 1.4).

Figure 1.2
Active Apprentices in Ontario, 1993–94 to 2006–07



Source: MTCU files

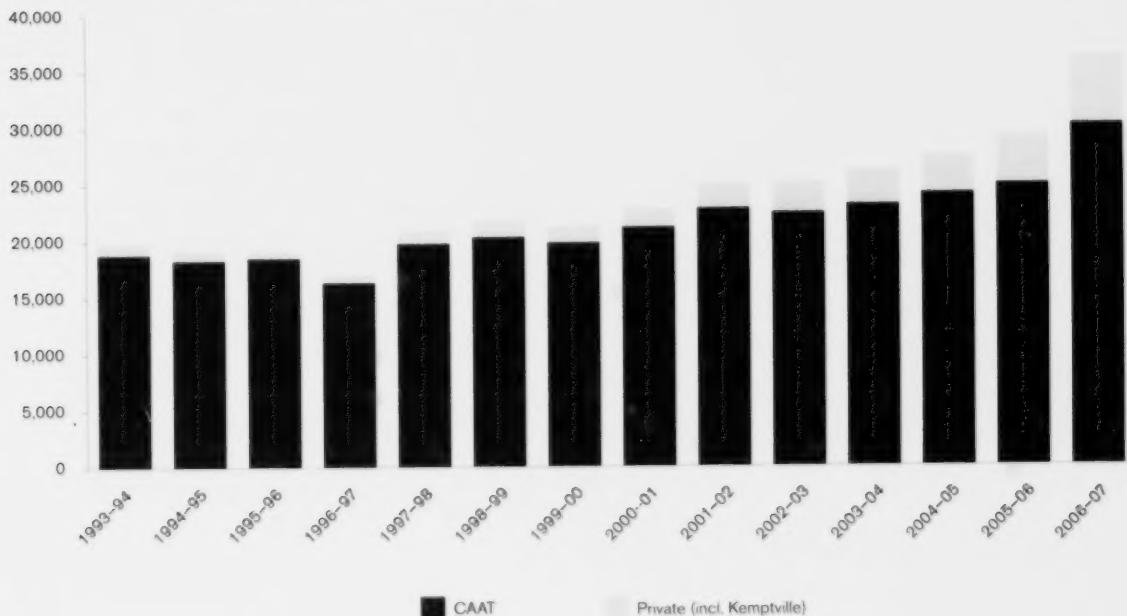
⁷ Except where noted, this overview draws on an internal HEQCO background paper, Stewart (2009).

Figure 1.2 shows the number of active apprenticeships in Ontario for the period 1993–94 to 2006–07. The number was relatively stable at just over 40,000 throughout the 1990s. It began to increase in 2000 and has grown nearly every year since, with a large jump in 2006–07. Figure 1.3 shows the new apprenticeship registrations that underlie Figure 1.2. New registrations were flat at just under 20,000 per year, or even declining slightly, to the mid-1990s. They turned upwards thereafter, rising to over 35,000 per year in 2006–07. It is clear from Figure 1.3 that the vast majority of new registrations are through the CAATs.



Figure 1.3

New Apprenticeship Registrations in Ontario, 1993–94 to 2006–07



Source: MTCU files

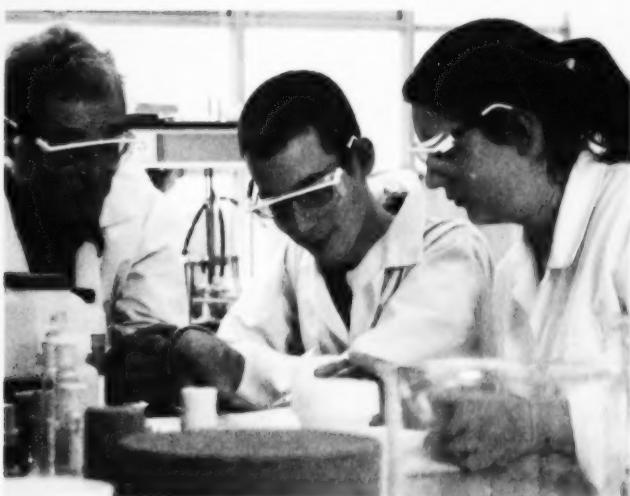
There are a number of interesting issues regarding apprenticeships in Ontario. How can Ontario's relative position within Canada with respect to trades and apprenticeship credentials be explained? Does this reflect the natural outcome of a freely-operating labour market in a province with a unique industrial structure, or does it reflect barriers to registration and completion of apprenticeship programs in the province? If the latter, what are these barriers? Are they on the demand side, meaning there are more places for apprentices than persons to fill them, or are they on the supply side, meaning there are more persons looking for opportunities than there are places for them? Are there particular issues with respect to program completion in Ontario? Whatever the case, what are the factors behind the shortages and what are the possible policy responses?

These questions, among others, will be addressed in a series of Requests For Proposals (RFPs) that HEQCO will initiate in 2009.

1.7 Observations

The objective of this section is to determine whether Ontarians can be confident that the PSE system will meet the province's future human capital requirements. The good news is that Ontario is starting from a relatively favourable position. Current levels of aggregate educational attainment exceed those in other provinces, and even appear to rival those in other advanced economies, although a final conclusion in this respect will have to await the appearance of new and improved data. This enviable position stems from the success the province's colleges and universities have had in training and educating Ontarians, and from an ability to attract persons with PSE credentials from other provinces and countries.

The situation is less clear with respect to prospective educational attainment. Ontario currently appears to be meeting expectations, as three-quarters of the population aged 20–24 already have a PSE credential or are enrolled in a college or university. This figure matches HRSDC's projections of the skill requirements of jobs over the next decade. It also makes Ontario a leader among the provinces, although, once again, data issues preclude making firm comparisons with other advanced economies.



Four points of caution are in order. First, future incremental demand for PSE will come disproportionately from persons in traditionally under-represented groups. As we shall see in the next section, attracting these individuals to PSE, and having them succeed once enrolled, will pose particular challenges for both PSE institutions and government policy.

Second, we have referred throughout to postsecondary education in general, and have not distinguished among the various types and levels of attainment; however, the mix of credentials is obviously important. Consider, for example, the Ontario government's announcement in

Budget 2005 of its intention to increase graduate enrolment by 14,000 places over 2002–03 levels, by 2009–10. In a separate initiative, the government also committed to increasing the number of new apprenticeship registrations to 26,000 annually by 2007–08. Clearly, any PSE accountability framework will need to recognize specific targets as well as aggregate ones.

Third, there is a very real chance that a supply-side constraint could become binding. Projected demand for PSE places in the GTA exceeds any realistic estimate of the abilities of existing colleges and universities to supply these places. This issue is addressed in Chapter 4.

Finally, Ontario is not alone in recognizing the importance of PSE in achieving broad economic and social objectives, and in focusing attention on the sector. Jurisdictions everywhere are acknowledging the essential role of advanced education and training in meeting social and economic objectives, and are devoting considerable attention to the sector. Thus Ontario will face ever-stiffening competition if it wishes to remain among the leading jurisdictions with respect to PSE attainment.



two

Chapter 2: Accessibility

The focus on PSE participation in Ontario is not just on aggregate educational attainment, but also on how this attainment is distributed among the various socioeconomic groups, i.e. on accessibility. The general expectation is that PSE opportunities should be open to all Ontarians with the potential to use them to advantage. Reaching Higher identified four groups for particular attention in this respect: Aboriginals, first generation students, persons with disabilities and francophones.⁸

There are two broad rationales for this position. First, equal access is clearly desirable on equity grounds. PSE brings significant economic and non-economic benefits to individuals, and it is only proper that these be available to all Ontarians. There is also a link back to the "how many" objective: the province needs to increase representation of traditionally under-represented groups if it is to meet aggregate participation targets.

This chapter looks first at what is known about PSE accessibility in general, then at the current situation in Ontario and finally at prospects.

2.1 The Literature

There is an extensive literature on accessibility to PSE and an emerging consensus on "who goes". Most of the Canadian research has been done at the national level, with little attention paid to possible provincial differences. The national literature is summarized in this section as a framework for looking in more depth at PSE accessibility in Ontario.⁹

⁸ The challenge facing francophones is not relatively lower participation rates, as for the other groups in this category, but rather the availability of PSE programs delivered in French.

⁹ Except where noted, this overview is drawn from a survey paper prepared for HEQCO (Educational Policy Institute [EPI], 2008a).

Income

The early research on accessibility focused, understandably, on the impact of personal and family income on who goes to college and university. There is a clear consensus in the Canadian literature that individuals from the highest income families are more likely to opt for PSE in general, and university in particular, than those from lower income families. For instance, in 2003 46% of 19 year olds from the highest income quartile had pursued some university studies compared to 25% from the lowest income quartile. Youth from high income families are also more likely to attend college, although the disparity is much smaller (Berger, 2008, p. 8).

There is less agreement on whether this gap has changed over time, and in particular on what is happening to relative participation by middle income families. Corak, Lipps and Zhao (2003) find that participation rates of the middle class (family income ranging from \$25,000 to \$100,000) were decreasing both absolutely and relative to those in the lowest income group (family income less than \$25,000). Drolet (2005), however, concludes that "there is little evidence to support the notion that the above-noted university participation gap between the highest and lowest family income group has changed in any meaningful way over the period" (p. 13).

There is even less agreement on how to interpret correlations of income with PSE participation. The research challenge stems from the fact that income varies systematically with other socio-economic factors that also enter into PSE participation decisions. We return to this point below.

Gender

The most evident trend with respect to gender is a significant increase in female participation in recent decades. Young women are now more likely to go on to postsecondary education than young men. The explanation lies partly in differences in reported high school experiences and partly in the availability of relatively high-paying/low skill jobs in the resource sector traditionally taken up by men. Within universities, women are disproportionately represented in social sciences while men are more prominent in science and engineering. These differences extend to the college sector where men obtain almost three times as many technological education credits as females (Taylor, 2007). Men are also predominant in most types of apprenticeship training.

Disabilities

There is relatively little research into access to PSE for persons with disabilities, in part because of the challenge in defining the term and the consequent lack of reliable administrative data. The existing evidence suggests that persons with disabilities who pursue PSE tend to do so through colleges more than through universities. PSE students with disabilities tend to be older and have greater family responsibilities. The severity of the disability is understandably also a factor in explaining accessibility patterns.

First Generation

The term "first generation student" is relatively new in Ontario and Canada. It refers to a student whose parents have not completed postsecondary education (including apprenticeship

training), and is not to be confused, as it often is, with persons born in Canada whose parents were born outside the country. The evidence seems clear that first generation students face significant challenges to PSE participation. There is considerably less agreement, however, on why this might be the case. PSE and family income are positively linked, so it is possible that parental education acts as a surrogate variable for ability to pay. There may be non-financial considerations at work as well, such as parental attitudes to education or lack of confidence in navigating the complexities of the PSE application and registration procedures.

Aborigines

Aboriginal participation rates have increased over time, but particularly for university attendance, they are still substantially below those for non-Aboriginal people. There are several explanations for the lower rates, including financial considerations, lower parental education, lack of self-confidence and motivation, lack of accommodation of Aboriginal cultures on campuses and expectations of racism in labour markets. Aboriginal students are more likely to be older, married and have children than non-Aboriginal students, reflecting a tendency to delay entry after high school.

Ethnicity

Overall participation patterns for most ethnicities are in line with their population numbers, although there are observable differences among groups. High school graduates born outside Canada are more likely to attend university and less likely to attend college. There is a gender component within some ethnic groups, with females more likely to participate than males. This is true, for example, among Black university applicants, raising concern about the absence of young Black men in the PSE system.

Family Status

Family type matters for PSE participation. Students from two-parent families are more likely to go on to postsecondary education, although participation from single-parent families is rising. Students with dependent children, particularly single parents, are less likely to complete PSE. There is likely to be considerable overlap in this case with other determinants of participation such as income.



Distance

Distance matters as well. Individuals who cannot access a PSE institution within commuting distance are less likely to attend than those who live nearer. However, the explanation for this phenomenon is not clearly established. Part of it may lie in the extra financial burdens that distance imposes, such as living away from home. There is also some evidence that fewer rural and northern parents expect their children to attend PSE.

Disentangling the Factors

As noted above, there is considerable overlap among the categories. PSE attainment and income are positively correlated, for example, so children from families where neither parent completed PSE are likely to be relatively poorer. Is it income or a more complex mix of social factors that explains relatively lower participation rates among these individuals? The challenge is greatest perhaps when looking at Aboriginal participation rates. Are the relatively low rates due to lower average incomes, rural or northern locations, first generation status, cultural factors, expectations of discrimination in labour markets or, most likely, all of these?

2.2 Current Educational Attainment

The first step in evaluating accessibility in Ontario is to look at current educational attainments by the socioeconomic groups identified in *Reaching Higher*. Table 2.1, drawn from the 2006 census, shows the highest educational attainment for all Ontarians aged 25–64 (second column, repeated from Table 1.2) and for males, females, persons of Aboriginal identity and persons with disabilities in the same age cohort. Table 2.2 contains the same information for various ethnic groups. Unfortunately, there are no data for the fourth designated group – persons from families where neither parent has a PSE credential.

There are no significant gender differences in overall PSE attainment. Relatively more men report apprenticeship certification and relatively more women possess a college certificate or diploma. The rates for university certificates or diplomas are virtually identical.



There is a significant PSE attainment gap for the Aboriginal population. Just over 28% of self-identified Aboriginals in Ontario reported having no certificate, diploma or degree in 2006, compared to 13.6% for Ontarians as a whole. The figures for high school certificate or equivalent are virtually identical. Interestingly, a significantly greater proportion of Aboriginals report apprenticeship or trades certificates or diplomas – 12.5% compared to 8.8% for the province as a whole. This group is also slightly more likely to report college certification – 23.4% compared to 22% for all Ontarians. The stark discrepancy in overall PSE attainment comes in university studies. Ontarians as

a whole are 1.7 times more likely than Aboriginals to report certificates or diplomas below the bachelor's level, and nearly three times more likely to report credentials at the bachelor's level or above.

Table 2.1

Highest Level of Educational Attainment, Population Aged 25–64, Canada and the Provinces, 2006 (percentage)

Educational Attainment	Ontario	Male	Female	Aboriginal Identity	Population with Disabilities*
No certificate, diploma or degree	13.6	14.1	13.0	28.1	35.4
High school certificate or equivalent	25.0	24.2	25.8	24.2	22.8
Apprenticeship or trades certificate or diploma	8.8	11.7	6.0	12.5	12.0
College, CEGEP or other non-university certificate or diploma	22.0	19.7	24.2	23.4	17.5
University certificate or diploma below bachelor level	4.7	4.3	5.0	2.8	12.1**
University certificate or degree at bachelor's level or above	26.0	25.9	26.0	8.9	
College or university	52.7	49.9	55.2	35.1	29.6
Apprenticeship, college or university	61.4	61.6	61.2	47.6	41.6

Source: Statistics Canada, 2006 Census of Population, catalogue no. 97-560-XWE200602

*Source: Statistics Canada, Participation and Activity Limitation Survey, 2001

**Note: 12.1 is the percentage of population with disabilities with any kind of university level certificate, diploma or degree.

There are no 2006 data yet available on educational attainment for persons with disabilities, so the final column in Table 2.1 is drawn from Statistics Canada's "Participation and Activity Limitation Survey, 2001". More than one-third of the population aged 25–64 with disabilities reports no certificate, diploma or degree of any type, nearly three times the figure for Ontario as a whole in 2006. This group is more likely to possess apprenticeship or trades certificates or diplomas than Ontarians generally. Rates of college attainment are somewhat lower – 17.5% compared to 22% overall. The real discrepancy again is in university credentials, where attainment rates are about 40% of those of the population as a whole.

Table 2.2 illustrates that the PSE attainment situation for visible minorities in Ontario is mixed. Eight of the 12 ethnic groups represented in the table have a greater percentage of their populations aged 25–64 with a university certificate or degree at the bachelor's level or above than non-visible minorities. All 12 groups exceed the non-visible minority figure for university certificates or diplomas below the bachelor's level. Only in one case does the percentage with a college credential as its highest educational attainment, exceed that for non-visible minorities. Adding together college and university credentials, only three ethnic groups have a lower level of PSE attainment than do non-visible minorities. Including apprenticeship or trades certificates or diplomas in this calculation does not change the conclusion.

Unfortunately, there are no comparable data for highest educational attainment of first generation Ontarians; i.e. those for whom neither parent completed postsecondary education.

Table 2.2

Highest Level of Educational Attainment, Ontario Population Aged 25–64, by Visible Minority Group and Overall Ontario Population, 2006 (percentage)

Educational Attainment	Total population Ontario	Chinese	South Asian	Black	Filipino	Latin American	South-east Asian	Arab	West Asian	Korean	Japanese	Visible minority, n.i.e.	Multiple visible minority	Not a visible minority
No certificate, diploma or degree	13.6	13.0	11.9	11.4	3.2	15.7	27.3	12.6	12.1	2.7	3.5	18.0	11.5	14.0
High school certificate or equivalent	25.0	18.9	21.5	23.7	15.4	25.3	27.5	19.2	22.7	18.1	18.1	29.7	20.0	26.1
Apprenticeship or trades certificate or diploma	8.8	3.1	4.7	12.2	6.4	11.1	6.5	4.6	6.8	2.7	3.7	9.4	7.2	9.5
College, CEGEP or other non-university certificate or diploma	22.0	12.3	12.6	26.4	17.3	18.9	14.4	12.9	12.0	11.4	20.8	21.5	20.0	23.8
University certificate or diploma below bachelor level	4.7	8.1	9.0	7.8	15.7	6.5	5.0	7.2	7.5	10.9	6.8	6.7	8.8	3.5
University certificate or degree at bachelor's level or above	26.0	44.6	40.4	18.5	41.9	22.6	19.3	43.4	38.9	54.2	47.2	14.7	32.5	23.1
College or university	52.7	64.9	62.0	52.7	75.0	47.9	38.7	63.6	58.4	76.5	74.8	42.9	61.4	50.4
Apprenticeship, college or university	61.4	68.1	66.6	64.9	81.4	59.0	45.2	68.2	65.2	79.2	78.4	52.3	68.6	59.9

Source: Statistics Canada, 2006 Census of Population, catalogue no. 97-562-XCB2006017

2.3 Prospective Educational Attainment

Tables 2.1 and 2.2 are backward looking, representing decisions already taken. The next step is to look at future prospects, which means focusing in particular on the age cohort that will soon be entering the work force. As above, we examine two indicators: PSE credentials already attained and those in progress.

2.3.1 PSE Credentials Completed

Table 2.3 shows the highest educational attainment achieved by the age cohort 20–24 in 2006 for Ontarians as a whole (repeated from Table 1.4) and for men, women and persons of Aboriginal identity. Unfortunately, data for visible minorities, first generation and persons with disabilities are not available for this age cohort.

Table 2.3

Highest Level of Educational Attainment, Ontario Population Aged 20–24, by Characteristic, 2006 (percentage)

Educational Attainment	Ontario	Male	Female	Aboriginal Identity	Aboriginal Male	Aboriginal Female
No certificate, diploma or degree	11.6	13.6	9.6	34.4	36.3	32.7
High school certificate or equivalent	48.0	50.6	45.4	40.0	40.4	39.4
Apprenticeship or trades certificate or diploma	3.8	4.6	2.9	4.9	6.8	3.1
College, CEGEP or other non-university certificate or diploma	18.2	16.6	19.9	15.0	12.5	17.3
University certificate or diploma below bachelor level	3.8	3.5	4.0	1.2	1.0	1.4
University certificate or degree at bachelor's level or above	14.6	11.1	18.2	4.5	2.9	6.0

Source: Statistics Canada, 2006 Census of Population, catalogue no. 97-559-XCB2006019 and catalogue no. 97-560-XCB2006007

The surge in female PSE participation is clearly evident in the table. Over 18% of females aged 20–24 have a university certificate or degree at the bachelor's level or above, compared to 11.1% for males. A greater proportion of women in this age group have a college credential as well, 19.9% compared to 16.6% for men. The reverse is true for apprenticeships and trades.

Aboriginals lag provincial averages in three of four PSE categories: college, university below bachelor's level and university at bachelor's level or above. The exception is in trades and apprenticeships where 4.9% of the Aboriginal population in this age cohort reports a certificate or diploma compared to 3.8% for the population as a whole. There is a notable gender difference among the Aboriginal population, with females leading their male counterparts in terms of college and university credentials.

We noted above that Aboriginals tend to enrol in PSE programs at a later age. Thus the picture painted in Table 2.3 may be different if an older cohort is chosen. Table 2.4 shows the highest educational attainment for Aboriginals for various age cohorts in 2006, compared to those for the province as a whole (figures in brackets). The picture alters slightly for university credentials. Table 2.4 illustrates the importance of assembling information on participation rates over a range of age cohorts, and not just the traditional 18–24 or 20–24.

Table 2.4

Highest Level of Educational Attainment, Ontario Aboriginal Population and Overall Ontario Population, by Age Group, 2006 (percentage)

Educational Attainment	20-24	25-34	35-44	45-54	55-64
No certificate, diploma or degree	34.4	24.1	24.4	29.7	39.3
<i>(11.6)*</i>	<i>(8.7)</i>	<i>(10.5)</i>	<i>(14.5)</i>	<i>(22.1)</i>	
<i>2.96**</i>	<i>2.78</i>	<i>2.33</i>	<i>2.05</i>	<i>1.77</i>	
High school certificate or equivalent	39.9	28.5	24.2	23.1	18.7
<i>(48.0)</i>	<i>(23.8)</i>	<i>(24.3)</i>	<i>(27.2)</i>	<i>(24.4)</i>	
<i>0.83</i>	<i>1.20</i>	<i>1.00</i>	<i>0.85</i>	<i>0.77</i>	
<i>4.9</i>	<i>9.4</i>	<i>12.9</i>	<i>14.3</i>	<i>13.9</i>	
Apprenticeship or trades certificate or diploma	<i>(3.8)</i>	<i>(6.0)</i>	<i>(8.6)</i>	<i>(9.6)</i>	<i>(10.9)</i>
<i>1.29</i>	<i>1.58</i>	<i>1.50</i>	<i>1.50</i>	<i>1.28</i>	
<i>15.0</i>	<i>24.2</i>	<i>26.8</i>	<i>22.6</i>	<i>17.0</i>	
College, CEGEP or other non-university certificate or diploma	<i>(18.2)</i>	<i>(24.3)</i>	<i>(23.9)</i>	<i>(21.5)</i>	<i>(17.5)</i>
<i>0.82</i>	<i>0.99</i>	<i>1.12</i>	<i>1.05</i>	<i>0.98</i>	
<i>1.2</i>	<i>2.4</i>	<i>3.0</i>	<i>2.9</i>	<i>3.1</i>	
University certificate or diploma below bachelor level	<i>(3.8)</i>	<i>(4.5)</i>	<i>(4.7)</i>	<i>(4.6)</i>	<i>(5.0)</i>
<i>0.32</i>	<i>0.54</i>	<i>0.63</i>	<i>0.63</i>	<i>0.62</i>	
<i>4.5</i>	<i>11.4</i>	<i>8.7</i>	<i>7.4</i>	<i>8.0</i>	
University certificate or degree at bachelor's level or above	<i>(14.6)</i>	<i>(32.7)</i>	<i>(28.0)</i>	<i>(22.6)</i>	<i>(20.1)</i>
<i>0.31</i>	<i>0.35</i>	<i>0.31</i>	<i>0.33</i>	<i>0.40</i>	

Source: Statistics Canada, 2006 Census of Population, catalogue no. 97-559 XCB2006019

*Numbers in brackets - educational attainment of overall Ontario population

**Numbers in italics - ratio of educational attainment of Ontario Aboriginal population to that of all Ontarians

Table 2.5 shows the highest educational attainment in 2006 for the Ontario Aboriginal population aged 25–64 by area of residence. The differences are striking. The proportion of the population in urban census metropolitan areas with a university credential at or above the bachelor's level is double that of urban non-census metropolitan areas and rural areas, and three times that of the population on reserves. The differences carry over into other PSE categories although the gaps are not as large. It is important to keep these differences in mind when considering policy options for enhancing Aboriginal participation in PSE.

Table 2.5

Highest Level of Educational Attainment, Ontario Aboriginal Population Aged 25–64, by Area of Residence, 2006 (percentage)

Educational Attainment	On reserve	Rural	Urban non-census metropolitan area	Urban census metropolitan area
No certificate, diploma or degree	45.2	25.7	28.8	22.9
High school certificate or equivalent	16.1	26.8	25.9	25.4
Apprenticeship or trades certificate or diploma	11.7	14.9	12.8	11.6
College, CEGEP or other non-university certificate or diploma	20.1	23.5	25.5	23.7
University certificate or diploma below bachelor level	2.7	2.3	2.4	3.3
University certificate or degree at bachelor's level or above	4.1	6.8	6.5	13.0

Source: Statistics Canada, 2006 Census of Population, catalogue no. 97-559-XCB2006019

2.3.2 PSE Credentials Underway

This is not the complete picture, however, as a significant portion of the 20–24 age cohort is in school or involved in a training program at any given time. To understand fully whether differences in PSE attainment levels by socioeconomic groups are narrowing, we need to look at current participation rates. Unfortunately, these data do not exist.

In principle, it is straightforward to calculate participation rates. The numerator is the number of persons aged 20–24 in the designated group (Aboriginal, first generation, etc.) enroled in an apprenticeship, college or university program. The denominator is the total population of persons of that age cohort in each designated group. The ratio is typically expressed in percentage terms.

The census can provide data for the denominator in some of these categories, although it is only available every five years. The more significant problem is obtaining enrolment figures for the various groups. Colleges and universities attempt to collect these data in a variety of ways currently. Many institutions independently collect data on traditionally under-represented groups, but question wording, administration and sampling vary greatly. On an Ontario-wide basis, colleges have two sources of data collection, a College Applicant Survey (CAS, 2003–2006; UCAS, 2007, 2008) and the Ontario College Student Engagement Survey (OCSES). Since 2006, applicants who respond to CAS have been matched with their registration status, so the data can be interpreted as being from first year students. Applicants are asked to self identify whether they are of Aboriginal identity, are a member of a visible minority group or a person with disabilities, and are asked about their parents' education levels. The OCSES, with slightly different wording, also collects this information from students in all years of study, with one key difference being that it asks about Aboriginal ancestry rather than identity.¹⁰

For universities, the National Survey of Student Engagement (NSSE), conducted for first and fourth year university students, asks survey respondents about both their ethno-cultural identity (including Aboriginal) and ancestry, and collects information on parental education. It does not ask about disability status, however.

¹⁰ However, the response rates in OCSES vary widely by institution.

These data are collected for a variety of purposes, with a variety of administration methods and sampling techniques, and consequently are not reliable indicators of PSE participation rates at this time. We will continue to work with the data and the definitions, but we are concerned that without a concerted and centralized, or at least a highly coordinated, effort to provide the information on a consistent basis, the information we need to address accessibility issues properly will not be available.

2.4 Observations

The objective of this section is to evaluate how evenly PSE opportunities are spread among the various socioeconomic groups in Ontario. The analysis is hampered by the lack of appropriate data, particularly for current PSE enrolment. Nonetheless, it is clear that Ontario is not meeting its expressed objectives with respect to accessibility. Aboriginals and persons with disabilities are under-represented in the sector as a whole and in universities in particular. The situation is mixed for visible minorities. Some groups participate actively in PSE, especially in university programs, while a few are clearly under-represented. There is not enough reliable information on first generation students to draw any firm conclusions.

It must be noted, however, that Ontario shares this challenge with many other jurisdictions. Enhancing accessibility is a key theme in other analyses of PSE systems and many of the same under-represented groups are singled out for special attention.

2.5 Policy Options

It is clear from the discussion thus far that maintaining and enhancing participation in postsecondary education, particularly for traditionally under-represented groups, will be on Ontario's policy agenda in the coming years. Thus the next step is to identify and evaluate policy options. As is evident from the above discussion, we have a reasonably firm understanding of who goes to PSE. Our understanding of how to encourage participation by those who currently do not go is, however, much more limited. For this reason, we begin by setting out a simple framework for understanding PSE participation decisions, and then use this framework to describe and assess policy options.

Each PSE participation statistic reflects simultaneously a demand decision (by a student) and a supply decision (by an institution). The student has chosen to apply to an institution and the institution has chosen to accept the student. Thus we need to understand both sides of the PSE enrolment process if we are to evaluate existing policies and recommend changes. We will focus on determinants of the demand to participate in PSE in this chapter, looking first at determinants of the decision to participate, then at potential barriers and finally at options for dealing with these barriers. Chapter 4 takes up supply-side issues.

2.5.1 Understanding the Decision to Participate in PSE

There is a standard approach to modeling the decision to participate in PSE. Education is typically viewed as an investment decision, wherein the individual compares the expected economic and non-economic returns of attaining a PSE credential to the expected costs incurred in doing so. Economic returns are captured in wages, salaries and employment rates. There is a clear and stable relationship between education and life-time earnings in Canada and in other

advanced economies. University graduates have the highest average employment income at virtually all age groups, followed by college graduates, then those with trade certifications, then those with high school diplomas and finally those with less than high school diplomas (Boothby & Drewes, 2006).

Not all returns to PSE are financial, however. The very process of learning is pleasurable, or at least should be. Whatever their occupational choice, graduates' lives are enhanced through exposure to fine arts, world history, other languages and cultures and so on. College or university is also where many students form life-long social networks. These non-economic benefits explain in part why so many students choose general arts and science programs, and why even technical programs typically feature general interest course options.

Education is costly, however. Most obviously, there are direct costs such as tuition and other fees, books, shop and lab supplies, etc. The most significant cost in most cases is foregone earnings, defined as what the student could have earned if he or she were in the labour force full time rather than in school. The extent of these costs depends on a number of factors, the most obvious ones being PSE program length and the availability and value of alternative employment opportunities.

In this basic formulation, the decision as to whether to participate in PSE is a simple investment calculation. The student will register if the expected rate of return is at least equal to that available from the next best investment opportunity. Allowing for non-economic benefits lowers the required – or threshold – financial rate of return.

This simple model helps explain several familiar features, such as why PSE participation rates rise as the economy slows or why these rates are relatively lower in more robust regional economies. But it needs to be extended to understand other patterns in the PSE participation data. Put differently, there are a number of reasons why individuals might not invest in PSE even if the expected rate of return by this simple calculation appears to be attractive.

2.5.2 Potential Barriers to Participation

It is useful to group potential barriers to PSE participation into two basic types: financial and non-financial.

Financial Barriers

Financial barriers have been extensively studied in Canada and elsewhere. In spite of this attention, however, there is considerable confusion about the role they play in affecting PSE participation rates and therefore about appropriate policy responses.

It is essential at the outset to distinguish between two types of financial considerations. The first type is a liquidity constraint. PSE costs are mostly paid upfront while benefits accrue over a lifetime, so students must somehow finance their programs of study. Some students will have family and personal savings to draw on, but there may be others who face a genuine liquidity constraint. Thus there may be individuals who would like to invest in PSE on the basis of a benefit-cost calculation but cannot cover the upfront costs. Where it exists, a liquidity constraint is a genuine barrier to PSE participation.



The simple PSE participation model assumes a neutral attitude to taking on debt. But benefit and cost calculations are estimates based on the best information the individual has at the time. Actual outcomes may differ from expected ones, perhaps even significantly so. In other words, borrowing to invest in PSE is risky. Risk-averse individuals may be unwilling to take out loans even when the apparent return equals or exceeds the apparent costs of borrowing. The uncertainty surrounding both expected costs and expected benefits is enough to make the investment unattractive.

Differences in attitudes to risk may explain some of the variation in PSE participation rates. Some of the differences in attitudes to taking on debt may be cultural in origin. Others may reflect realistic evaluations of expected costs and benefits due to such things as family status, geographical constraints or labour market discrimination. HEQCO is partnering with the Canada Millennium Scholarship Foundation (CMSF) on a project to examine the determinants of willingness to borrow for PSE and how, if at all, these determinants vary among socioeconomic groups. The results of this study will be reported in a future publication.

The second type of financial consideration stems from a straightforward comparison of expected costs of PSE to expected benefits. Individuals may decide that the expected benefits of PSE – monetary and non-monetary – simply do not justify the costs involved. If the benefits of PSE were purely private, this would be the end of the story. There is no PSE participation barrier; the investment is simply not warranted on benefit-cost grounds. If, however, there are significant societal benefits to PSE, as is commonly supposed, there is a case for government intervention to make the benefit-cost calculation more favourable. Options for subsidizing PSE are examined below.

Non-Financial Barriers

Non-financial barriers to PSE participation have long been acknowledged in Canada, although research in the area is still limited. The following is a partial list of possible non-financial barriers.

The apparent response to a liquidity constraint is to take out a loan. The student borrows to complete the program and repays the loan out of future earnings. As long as the rate of return on PSE exceeds the cost of borrowing, taking out a loan makes financial sense for both the individual and society in general. Private markets for human capital investments are not well developed however, so student loan programs typically mean government involvement. Overcoming liquidity constraints is one of the major ways in which student loan programs contribute to enhancing PSE participation.

However, even generous and well-designed loan programs may not alter PSE investment decisions for all individuals.

Difficulty in obtaining information about the costs and benefits of PSE participation is one example. Estimating PSE costs can be complex. Tuition and ancillary fees vary greatly among programs, and in some cases among institutions. The same is true for the cost of books and supplies. If the student has to live away from home, living costs must be taken into account. A further, even more difficult cost calculation is that of foregone earnings.

Estimating expected incremental income from PSE is even more complex. Students have to make some assumptions about the state of the economy generally when making this decision. More difficult yet, they have to make these calculations for specific sectors or occupations. Even if they have information on the projected average returns of specific occupations, they do not know how their own outcomes will relate to this average.

Where a loan is involved, the student must deal with a potentially complex set of conditions and procedures. There is evidence to suggest that students and parents are often confused by financial aid applications. One estimate for the US suggests that the complexity of the system may account for nearly 850,000 eligible students not completing the forms (Bettinger, Long & Oreopoulos, 2007). No comparable data are available for Ontario but information gaps may explain some of the variation in participation rates among various socioeconomic groups.

There is evidence that some students, particularly those from lower income families, tend to over-estimate the true costs of PSE and under-estimate the benefits (Usher, 2005). In this event, the decision not to attend PSE is a rational one on the part of the individual as PSE does not appear to provide an adequate rate of return. Information complexity may be a factor in explaining lower participation rates of Aboriginal and first generation students as well. Parents who went through higher education themselves would be more familiar with PSE processes and procedures, and thus more helpful in gathering and evaluating this complex material.

Lack of motivation is frequently cited as a reason for not pursuing PSE (Berger, Motte & Parkin, 2007). The challenge, however, lies in understanding the determinants of motivation and in particular in disentangling it from other factors such as income or parents' education levels.

Students whose parents did not attend postsecondary education have less cultural capital to draw on when making decisions. Not only are their parents less able to help them navigate the information needs of pursuing postsecondary education (information regarding career, program and institutional choice as well as how to access student financial assistance), but they are less likely to implicitly support the choice of going to postsecondary education with stories and examples from their own experiences.

Entrance to PSE typically requires proper secondary school preparation, which means making appropriate choices as early as grade 9 or 10. We know that these choices vary among population cohorts and this explains part of the variation in PSE rates (Junor & Usher, 2004). Ontario has a system of streaming students in Grade 10 into either academic or non-academic courses. Those in favour of streaming suggest that it offers courses to less academically inclined students that better suit their learning needs and aspirations (Krahn & Taylor, 2007). However, students from lower socio-economic status backgrounds tend to enter these courses disproportionately, and so limit their ability to participate later in university programs. Thus streaming may well contribute to creating or at least perpetuating social inequalities (Krahn & Taylor, 2007).

Rural and remote students also have an extra hurdle (Looker & Lowe, 2001). More than 60% of students in a recent survey indicated that they were not willing to relocate more than 100 km from their homes to attend college (Academia Group, 2007). This reluctance can create a significant barrier to PSE participation, particularly in regions with sparse populations.

Recently, a series of reports using Youth in Transition Survey (YITS) data have been released, tracking a cohort of students from high school to the labour market or postsecondary education. Much of this research confirms that non-financial barriers, in particular academic barriers, are often central to the decision not to continue to postsecondary education (Frenette, 2007; Tomkowicz & Bushnik, 2003). However, as YITS is a national survey, most of the research is focused on the national picture and does not address Ontario-specific issues.

HEQCO is a partner in a project that is examining characteristics of youth who do not pursue PSE and exploring factors that could act as barriers and disincentives for them to continue.

Which Barriers Matter Most?

Which barriers matter most: financial or non-financial? This is a very complex question, as noted repeatedly throughout this chapter. Financial and non-financial factors are highly correlated and it is difficult to distinguish between them with the data we have available. Further, as we shall see below, financial assistance programs have been in place in Ontario for decades and are constantly revised and extended. Current PSE participation patterns reflect in part the existence of these financial interventions. We do not know what participation would be like without these programs.

This is also a key question for policy purposes. Financial barriers can be addressed through a combination of loans, grants and other such initiatives. Non-financial barriers, on the other hand, require a more complex policy approach, featuring more attention to early intervention strategies.

Financial factors are often considered to be the most binding. The US literature appears to show a consistently negative relationship between net price of PSE (tuition fees minus grants) and enrolment, and this relationship appears to be strongest among low income students (EPI, 2008a).

The Canadian literature on financial constraints is more limited. Two major Canadian PSE surveys – YITS and the Post-Secondary Education Participation Survey (PEPS) – ask students directly about barriers to PSE, although they ask slightly different questions. Intriguingly, close to 50% of respondents identified no barriers to PSE participation. Of the barriers cited, financial considerations were the most common (EPI, 2008a, p. 16).

Two recent studies provide an intriguing interpretation of the determinants of PSE participation in Canada. Frenette (2007) breaks down the differences in PSE participation rates for 19 year olds from high and low income backgrounds. He concludes that nearly all of the difference can be accounted for by observable student characteristics. Parental education is the most important, followed by reading scores at age 15, overall high school grades and finally financial constraints. Finnie and Usher (forthcoming) also conclude that family factors vanish once high school grades are entered, suggesting that family effects are expressed through secondary school achievement.

EPI (2008a) concludes its survey for HEQCO with the following summary comment:

"This does not mean that financial barriers do not exist or are unimportant. For some students, at some times, they clearly are. Neither should this result be read in such a manner as to imply that tuition is unimportant and may be raised at will. But it is to say that the most sophisticated analyses suggest strongly that at *existing levels of tuition with existing student aid programs*, [emphasis in original] financial barriers are of far less importance than the barriers related to cultural capital and academic success." (p. 17)

We take our cue from this summary comment in our approach to evaluating policy options. Financial factors clearly matter for PSE participation. Governments have recognized these barriers and have devoted considerable attention and resources to addressing them, apparently with significant success. The interesting research questions on financial barriers thus focus on the effectiveness and fairness of the various policy approaches. In comparison, relatively little attention has been paid to non-financial factors, and therefore this is an area deserving of major research attention.

2.5.3 Options for Addressing Financial Barriers

There are several options for dealing with financial barriers to PSE participation. The instruments affect participation decisions in different ways, and have different equity or fairness implications. Thus in choosing among the options, it is important to identify the specific nature of the financial constraint to be addressed and whether the benefits are intended to be universal or directed at specific groups.

Regulating Tuition and Fees

One option is to regulate tuition and fees. In an unregulated world, tuition and fees would be established by the institutions, generally by Boards of Governors acting on the recommendations of senior administration. Levels would be





say, to target subsidies to needy students. If the government compensates colleges and universities for revenue losses with grants drawn from general tax revenues, and if the tax system is generally progressive and all high income earners attended PSE, then this effect may be offset somewhat.

Governments in Canada have frequently intervened to regulate tuition fees, and Ontario is no exception. Beginning in the 1960s the provincial government essentially capped tuition fees by tying operating grants inversely to revenue collected through tuition. A new policy introduced in 1998 deregulated fees for graduate, some undergraduate and some professional university programs, and for high-demand and post-diploma programs in the CAATs. Other programs faced caps on tuition fee increases.

In 2004 the newly-elected Liberal government froze all tuition fees for two years at their 2003–04 levels. A new tuition framework was introduced in 2006. Universities are now allowed to increase tuition for undergraduate arts and science and other programs by a maximum of 4.5% for students in the first year of their program and by a maximum of 4% for continuing years. They can increase fees for professional and graduate programs by a maximum of 8% per year for students in the first year of their program and by a maximum of 4% for continuing

set to cover the costs of providing the academic programs and the supporting services, and in general they would be higher in universities than colleges to reflect the research activities of the former. They would also be higher for some programs such as medicine, and they would certainly rise over time in line with inflationary increases in operating costs.

Intervening to keep fees lower than they would otherwise be reduces the cost of PSE to the individual, thereby increasing the expected rate of return and, presumably, the probability that the student will register in PSE. There is an extensive literature on the effects of tuition fees on PSE participation rates, and on university participation rates in particular. Generally, the studies for Canada find little or no relationship between tuition fees and participation rates (Johnson, 2008). One explanation of this result, of course, is that all jurisdictions have financial aid policies of some sort in place.

One common objection to advocating a tuition fee freeze or rollback as a means of encouraging PSE participation is that the benefit applies equally to all students regardless of income or other socioeconomic characteristics. It is better, critics

years. Colleges are permitted to increase tuition fees for basic programs by 4.5% for first year students and by 4% for continuing students. For certain programs, designated as high-demand programs, the figures are 8% and 4% respectively. No institution may increase its overall fees by more than a weighted average of 5% per year, however.

The current tuition fee policy expires in 2009–10 and a new framework will have to be put in place. There are a number of issues to be considered in deciding on a new framework. What impacts do tuition fees have on the decision to participate in PSE in Ontario? What impact do they have on the need to work while studying and with what effect on academic performance? Do these effects vary among socioeconomic groups? How do student financial assistance programs alter these relationships? What is the connection between tuition revenue and the ability of colleges and universities to make places available? HEQCO will examine these issues in future research.

Providing Student Financial Assistance

A second option for addressing financial barriers is to provide financial assistance to students in the form of loans or grants. To evaluate the effectiveness of financial assistance measures, it is important to have a clear understanding of the way in which loans and grants can alter decisions to participate in PSE, in particular for persons from traditionally under-represented groups.

Loans remove liquidity constraints, thereby potentially increasing participation among students who could not otherwise finance the upfront costs of PSE. As already noted, private markets do not function well in this regard, so student loan programs generally have extensive government involvement. Specific features of student loan programs such as interest-free periods, subsidized rates, interest relief and debt reduction lower the cost of undertaking PSE, thereby increasing the expected rate of return, and potentially increasing participation. Subsidies of this type also lower the total debt that would otherwise be owed, thereby reducing perceived risk and potentially increasing participation.

There are a number of issues involved in designing a student loan program. The first is eligibility. Loans can be universally available or they can be restricted to those able to demonstrate financial need. If the latter, eligibility can be defined by need (projected PSE expenses minus income available including expected family contributions) or by income. There is often a cap on the amount available annually and on total borrowing. Typically, the loan is interest free while the student is in school and repayment terms can be made to depend on the student's circumstances.

Grants directly reduce the cost of PSE participation, thereby increasing the perceived rate of return on PSE and potentially increasing participation rates. Also, by limiting debt amounts, grants reduce risk and so potentially increase participation rates.

There are also a number of design issues to be settled with respect to grants. They can be universally available or they can be restricted to specific student profiles. They can be delivered through the tax system or as actual payments. They can be based on merit, or perceived need, or some combination of the two. They can originate with government, or colleges and universities, or both. They can be renewable, contingent on maintaining academic standing, or they can be one-time. They can substitute for loans or they can be totally independent of them. They

can be granted at the beginning of a period of study or at the end after satisfactory completion. Grants can take the form of interest relief or debt forgiveness for student loans.

There is an emerging consensus in the literature on some of these design issues (Berger et al, 2007; Finnie, 2004; Usher, 2006b). Most analysts recommend directing grants or loans to specific student profiles rather than making them universally available. Tax incentives are an example of the latter approach. Such incentives provided by both federal and provincial governments have been a part of the overall assistance to students and their parents for some time. Scholarships, fellowships and bursary incomes are tax exempt; deductions are made for students relocating to study full time or for employment; a tuition fee credit is available and transferable to a spouse, guardian or parent; and education tax credits are available (Junor & Usher, 2004, p. 232).

Tax incentives have come under considerable scrutiny recently. Neill (2007), for example, finds no evidence that tax incentives have any impact on participation rates. Other observers have questioned the equity aspects of tax measures, arguing that they benefit disproportionately students from higher income families. Finally, a further concern regarding the use of tax credits is that upfront support vehicles for students, such as grants, are slowly being decreased as the tax system is increasingly being used as a form of student assistance (Usher, 2006).

A second theme of recent research is that grants appear to be more effective than loans in encouraging participation and persistence.¹¹ There is general acknowledgement that loan or grant programs may be designed in a variety of ways to achieve desired effectiveness and equity goals.

Ontario has an extensive system of student financial aid in place. The Ontario Student Assistance Program (OSAP) encompasses a collection of financial assistance programs available from the federal and provincial governments. Included under this umbrella are the Canada-Ontario integrated student loan program and a number of grants, scholarships and bursaries available for special circumstances and needs.

Student loans in Ontario are needs based. The amount a student is eligible to borrow each year is calculated by subtracting the amount of income the student is deemed to have available (including savings, assets, and parental or spousal support) from his or her education-related costs. Thus the permissible loan amount declines as income increases and at some point goes to zero. There is an annual loan limit and an overall limit. Loans are interest free until graduation. The provincial government offers an additional grant to eligible students whose annual OSAP debt exceeds \$7,000 for a two-term academic year. The federal government also provides targeted repayment options, interest relief and debt reduction, for students having trouble paying off their loans.

In addition to loans, there is a wide variety of government grants, bursaries and scholarships available in Ontario to students who apply for OSAP. Most of the grants and bursaries are intended to address the specific needs of under-represented students, including students from low income families, students with disabilities, part time students, students with dependants, and students experiencing repayment difficulties. Individual institutions also offer scholarships and bursaries, many of which are merit based with little or no relation to OSAP (EPI, 2008a).

¹¹ See, for example, the papers in the research series "Measuring the Effectiveness of Student Aid" (MESA), available at www.mesa-project.org.

In 2005, the Ontario government introduced a number of changes to the OSAP program through *Reaching Higher*. The changes were intended to increase the number of students who were eligible for OSAP and also to increase the amount of money that eligible students would receive. Integrated loan amounts were increased for single students and the amount that parents are expected to contribute to their child's total income was reduced.

In 2006, the Government of Ontario, in partnership with the province's colleges and universities, introduced the Student Access Guarantee (SAG). The SAG states that "No qualified Ontario student should be prevented from attending our publicly-assisted colleges and universities because of a lack of financial support programs" (Government of Ontario, 2008). To this end, the SAG added a number of specific measures to the student financial provisions already in place.



HEQCO is leading a working group charged with assessing the effectiveness of the SAG. The goal of the SAG is to increase PSE participation, particularly for low income individuals (who also are more likely to be Aboriginal, first generation, etc.). Thus the SAG's ultimate success will be measured by the extent to which it can be shown to have brought about these changes. It is too soon to be able to draw these links, however, so the first round of evaluation will focus on the potential effects of the SAG provisions and on assembling the requisite data for a more substantive analysis as experience with the changes accumulates.

A further change to the student financial assistance landscape will occur in 2010 when the Canada Millennium Scholarship Foundation dissolves and ceases to award its bursaries to high need and low income students. Ontario students who are eligible may currently receive two types of CMSF sponsored funding: the Canada Millennium Bursaries (for high need students) and the Millennium Ontario Access Grants (for low income students).¹² The federal government announced in its 2007 budget a new income-based bursary to replace the CMSF bursaries. However, it is not yet clear what effect the new income-based grant will have on participation of low income students, nor is it clear whether or not the Ontario government's increases to OSAP will make up for the loss of the CMSF.

2.5.4 Options for Addressing Non-Financial Barriers

Despite the growing amount of research that identifies non-financial barriers to postsecondary education in Canada, there is considerably less research on how to address them. This gap is explained in part by the difficulty in disentangling non-financial from financial barriers. For example, students from low income or first generation backgrounds may select-out of the

¹² Two types of merit awards are also available from the CMSF but these are not based on need or income and thus are not intended to address financial barriers directly.

pathway to postsecondary education early on in high school, or even earlier, and therefore not prepare academically or take courses required for university. The barrier shows up on surveys as 'not interested' or 'not academically prepared' but originates from a lack of financial or social/cultural capital required to pursue postsecondary education.

The challenge is further complicated by the difficulty of disentangling the set of non-financial barriers. For example, Aboriginal students on reserve are likely to face a multitude of barriers including lack of finances, not having a family member with postsecondary education, a high risk of high school non-completion, a lack of information about opportunities, a higher likelihood of having a dependant, and being older when they attend PSE.

In the US, where college preparedness or early intervention programs are common, there is some research into non-financial barriers, their relationship to financial barriers, and the effectiveness of addressing barriers in high school or before. Early intervention has been defined as referring "...to programs designed to keep at-risk students in school and to increase the postsecondary enrolment rates of educationally and economically disadvantaged students by providing a variety of services" (Cunningham, Redmond & Merisotis, 2003, p. 6).

These American programs, numbering over 1,200 and including community, institutional, state and federal initiatives, usually combine interventions as a way of addressing multiple and interactive barriers – both financial and non-financial. Interventions differ depending on the intention of the program. Some programs are designed to help students graduate from high school, others to prepare them for success in postsecondary education. They also differ as to when they are introduced with some beginning in high school while others are offered as early as third grade. The target population of these programs is another variable. Most are aimed at low income youth, although some are specifically targeted at certain minority populations and some are more universal.

Most of the programs have some mixture of the following elements: financial assistance (often in the form of guaranteed tuition); academic support (sometimes in the form of tutoring, or college enrichment experiences); and information, counseling and/or support (often in the form of peer and other types of mentoring). Evaluations of what is effective over time have led researchers to conclude that although it is impossible to disentangle the interventions and identify exactly which ones are effective in increasing participation levels, an emphasis on parental involvement and academic preparedness is essential to the effectiveness of most programs (Cunningham et al, 2003).

In Canada, research into how to affect student pathways from high school to postsecondary education is in its early days, and public policy that addresses early intervention is in its infancy. Ontario's *Pathways to Education Program* is leading the way in this area. The program was implemented in 2001 in Toronto's Regent Park neighbourhood by the Regent Park Community Health Centre. It was designed "to reduce poverty and its effects by lowering the high school drop-out rate and increasing access to postsecondary education among disadvantaged youth in Canada" (www.pathwaystoeducation.ca).

As an important part of its research into participation, HEQCO will focus on better understanding non-financial barriers to PSE participation and on exploring policy options for overcoming them.

2.6 Observations

The objective of this section is to explore policy options to address barriers to PSE participation, particularly those that can increase participation of traditionally under-represented groups. The main point that emerges from the survey is the limits to our knowledge in this area. Put differently, and more starkly, we know quite a lot about who goes to PSE, but relatively little about how to reach those who do not go.

We know that finances are an important variable, and we have a reasonably good understanding of how financial constraints operate and how, in principle, they can be overcome. We know that non-financial variables are key determinants as well, but we know much less about them. It is difficult to separate them from financial considerations and it is difficult to disentangle the set of possible influences. There is some US experience to draw on in assessing policy approaches but there are relatively few Ontario or Canadian examples.

The Rae Report stressed the importance of adequate financial assistance programs in achieving Ontario's PSE goals. *Reaching Higher* responded by altering several key features of the loans program and injecting additional funding into student support. The federal government and the CMSF collaborated in supporting Ontario students. HEQCO is leading a working group charged with assessing these policy changes. The specific intent is to assess the effectiveness of the Student Assistance Guarantee. The more general goal is to achieve a better understanding of the way student loan programs affect decisions to participate and to persist in PSE.

HEQCO will focus equally on identifying non-financial barriers to PSE participation and on exploring policy options for addressing them. This research is necessarily longer term in nature, and is therefore unlikely to lead to immediate policy recommendations. We submit, however, that the results of this line of enquiry will be key to addressing Ontario's accessibility challenges.



three

Chapter 3: Educational Quality

The previous chapter focused on the general expectations for the accessibility of postsecondary education in Ontario. The second broad expectation of Ontario's PSE system is that it should provide quality educational experiences and outcomes for those who have chosen to participate (Government of Ontario, 2005). We interpret this general goal to consist of three main components.

The first component is an expectation of high quality teaching and learning in colleges and universities. Students are understandably interested in quality learning opportunities, but this objective is also important to Ontarians in a more general way given the key role that the PSE sector is expected to play in ensuring the province's future economic and social wellbeing.

The second expectation is that qualified and motivated students should be able to complete PSE credential requirements in a reasonable period of time. Students have an obvious interest in this objective, as program completion yields a positive return beyond that attributable to years of schooling – the so-called sheepskin effect (Boothby & Drewes, 2006, p. 4). Students and society in general share an interest in avoiding unnecessary costs associated with prolonged programs and the prospect of non-completion. Note, however, that a reasonable period of time does not necessarily mean as quickly as possible. For many students, in particular adult learners, the opportunity to complete a program on a part time basis over an extended period of time is essential.

The third expectation is that program options will be appropriately responsive to the province's labour market needs. Stating the objective in this manner is not to deny that students pursue postsecondary education as much for the personal rewards of learning as for job training, nor to imply that curiosity-driven learning and job training are necessarily distinct. It simply acknowledges that the return to individuals and society will be higher when graduates are able to realize their career goals.

These three expectations are obviously related. All else being equal, one would expect retention and graduation rates to be higher when the quality of the educational experience is higher. Drop-out rates are also likely to be lower when the expectation of career success is greater. There is, however, considerable variation in retention and graduation rates for reasons other than program match and learning quality, so it is worth examining them separately.

3.1 Learning Quality

Evaluating learning quality in Ontario postsecondary education presents three challenges. The first is to define quality, the second is to find ways to measure it, both over time and on a comparative basis, and the third is to understand how to improve it and how to disseminate promising practices.

3.1.1 Defining Learning Quality

There is now a standard framework for understanding the challenges in defining and measuring educational quality.¹³ The exposition by Finnie and Usher (2005) is the most widely cited in the Canadian context.

Their framework begins with explicit recognition of student characteristics. These include academic preparation acquired in secondary school subjects such as mathematics, chemistry or French, as well as more general and intangible skills such as literacy, communication skills and problem-solving abilities. To these one might add even more general characteristics such as maturity and self-confidence. The reasonable assumption is that, all else being equal, the more positive the student characteristics the more pronounced the educational outcomes will be.

Their framework also recognizes the education production function. This is frequently, and understandably, referred to as a "black box" given the relative lack of understanding to date of the actual educational process.

As with any production process, there are three essential components to the PSE black box. The first component is input, encompassing the various elements colleges and universities employ to educate and train students. Obvious examples are faculty, staff, teaching assistants, classrooms, laboratories, libraries, etc. The assumption is that, all else being equal, the greater the quantity of inputs and the higher their quality, the greater the educational outcomes.

The education production function continues with educational processes, or the ways in which inputs are combined to produce educational outcomes; these include instructional programming, student support services, and the teaching and learning culture of the institutions.

The basic elements of instructional programming in most college and university curricula are the courses. These take various forms such as lectures, seminars, lab work, etc. Individual courses are part of more general programs, which lead to formal credentials such as certificates, diplomas and degrees. Courses and programs generally have concrete educational expectations and clear methods of testing and evaluation. The assumption is that, again all else being equal, the more effective the learning processes the greater the educational outcomes.

¹³ See, for example, Astin (1977), Pace (1979), Tinto (1987) and Pascarella (1985).

The quantity and quality of student support services are the next part of institutions' educational processes. These range from academic support programs such as math tutorials, to recreational activities such as sports or debating clubs. Out-of-classroom activities appear to increase student engagement in the educational experience and hence enhance learning outcomes (National Association of Student Personnel Administrators and The American college Personnel Association, 2004).

In conjunction with instructional programming and student support services, the culture of the institution with respect to teaching and learning completes the educational processes portion of Finnie and Usher's education production function. This cultural element can be thought of as the institution's formal and visible commitment to educational achievement. A supportive institutional culture is one where teaching and learning are valued and rewarded. This culture almost certainly means greater commitment of resources to education, but it goes beyond mere resources. The assumption is that, all else being equal, a visible commitment to excellence in teaching and learning leads to improved educational outcomes.

The education production function concludes with what Finnie and Usher call final outputs, which are also referred to as learning outcomes. These are the disciplinary knowledge and generic skills that students should possess upon graduation. Final outputs are often represented by the degrees, diplomas, certificates and other credentials that institutions award. In this parlance, final outputs are usually termed degree/diploma/certificate expectations.

The final feature of their model is recognition of final outcomes, representing benefits to the individual and to society from the knowledge and skills obtained during the course of study. Final outcomes include income, employment rates, personal health and wellbeing, citizen engagement and so forth. Some PSE final outputs lead directly to explicit market evaluations while others do not, hence the importance of distinguishing between final outputs and final outcomes.



This brief overview makes clear that learning quality is most usefully defined in value added terms. Colleges and universities admit students who already possess varying degrees of knowledge and skills. When these individuals graduate, it is hoped that they have both deepened and widened their knowledge. The greater the knowledge and skills that students possess upon leaving compared with that which they brought with them from secondary school, the greater is the value provided by colleges and universities.

The next challenge is to use this framework to evaluate learning quality in Ontario. Where possible, we are interested in gauging quality from two perspectives, the first being changes in learning quality in Ontario over time, and the second being a comparison of quality indicators for Ontario to those in comparable jurisdictions in Canada and other countries. Given PSE's increasing importance in meeting Ontario's economic and social goals, one would hope to see both quality improvements over time within Ontario's PSE sector, and a position for the province among Canada's leaders in providing quality educational opportunities.

There are two basic approaches to evaluating educational quality. The first is to attempt to produce empirical estimates of learning quality; the other is to focus on the rigour and effectiveness of current quality assurance processes.

3.1.2 Measuring Learning Quality

The Finnie-Usher model provides a useful framework for understanding the challenge in measuring learning quality. Ideally, data would be available for each component of the model and various statistical techniques would be used to establish the relationships among the variables. The data needed to proceed in this formal fashion do not exist, however. The alternative, a definite second best, is to proceed on a piecemeal basis with the information that is available. Unfortunately, as will quickly become evident, this approach leads to a confusing and contradictory picture of the quality of PSE in Ontario.

Input Measures

The most common practice when evaluating educational quality is to rely on input measures. The assumption, noted above, is that, all else being equal, the greater the supply of inputs, the greater the learning quality.

The most general input measure is operating revenue per student. Figure 3.1 shows general operating income per enrolment for Ontario and the other provinces for 2005–06, the latest year for which requisite data are available. The range among the provinces in per capita operating grants was considerable, from \$13,109 in Saskatchewan to \$5,712 in Nova Scotia. Ontario's grant of \$6,418 per FTE student was the second lowest among the provinces, and was only 74% of the average transfer in the other nine provinces. However, Ontario's operating grant in real terms (i.e. deflated by the Higher Education Price Index supplied by AUCC) has increased since 2003–04, so the relative situation may have improved somewhat.

Figure 3.1

General Operating Income per University Enrolment* for Ontario and Other Provinces by Source of Income, 2005–06

25,000

20,000

15,000

10,000

5,000

0

SK PEI BC NL AB NS ON NB MB PQ

■ Provincial Govt Grants & Contracts

Total Fees

■ Other

Financial Data Source: CAUBO reports, *Financial Information of Universities and Colleges, 2005–06*

Enrolment Data Source: Statistics Canada, *the Daily, University Enrolment 2005–06*, February 7, 2008

*Note: University enrolment used in this graph is total university enrolment, not FTE.

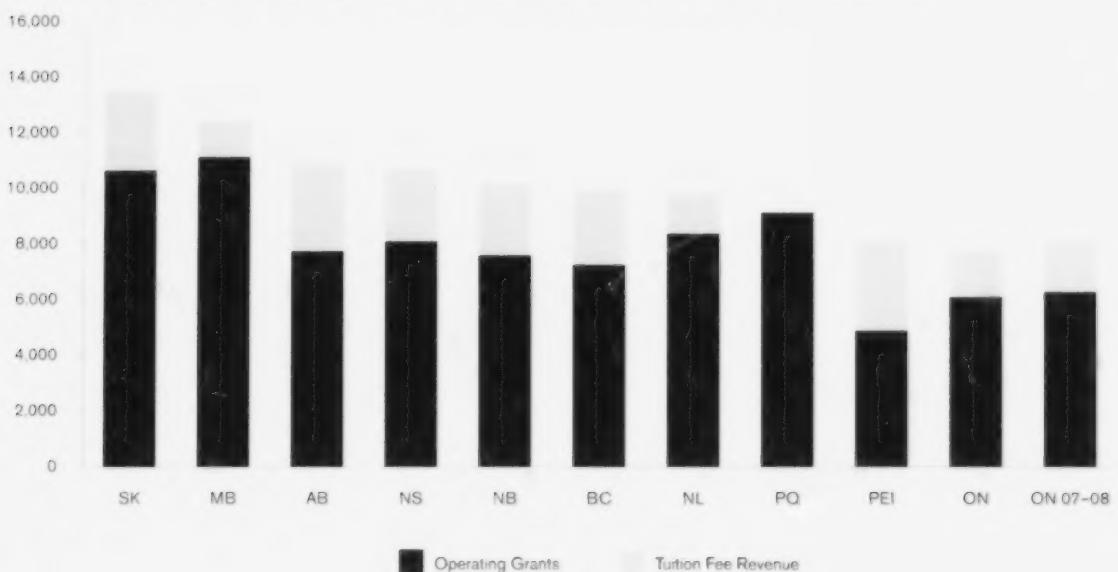
The relative revenue situation changes once tuition and fee revenue is considered, as Ontario's fees are among the highest in Canada. The province ranked second in terms of the percent of operating revenue accounted for by tuition and fees in 2005–06 at 42%, trailing only Nova Scotia at 48% and well above the other nine-province average of 32%. With fees and other revenue included, Ontario's income of \$13,103 per student enrolled put the province seventh out of 10 provinces and at 87% of the average of the other nine provinces.

Funding for Ontario universities does not compare well to that available to their US counterparts. In 2006, the Task Force on Competitiveness, Productivity and Economic Progress identified 10 public and 10 private peer institutions for each of Ontario's 17 universities. They conclude that in 2003–04 Ontario universities had access to only 72% of the revenue available to their public peers. The comparison to private institutions is even more stark, of course (Task Force on Competitiveness, Productivity and Economic Progress, 2006). Unfortunately, this study has not been updated to take account of recent investments through *Reaching Higher*.

The same comparative revenue situation holds for Ontario colleges. Figure 3.2 shows estimated grant and tuition fee revenue per college student for Ontario and the other provinces for 2006–07, with information for Ontario for 2007–08 included as well. Ontario ranked second last among the provinces in terms of per student operating grants in 2006–07, trailed only by PEI. Indeed, Ontario's per student grant in 2007–08 still leaves it behind PEI's figure for 2006–07. Once tuition and fee revenue is considered, Ontario slips to last place among provinces.

Figure 3.2

Estimated Grant and Tuition Fee Revenue per College Student for All Provinces 2006–07 and Ontario 2007–08



Source: Colleges Ontario, 2008 *Environmental Scan*, reproduction of Figure 5, page 53.

If this particular input indicator were to be used as a quality measure, it might lead to the conclusion that Ontario has one of the poorer quality PSE systems in Canada. The situation appears even worse in the university sector, at least when Ontario institutions are compared to their US counterparts.

However, two observations are in order. First, policies and practices with respect to grants and tuition fees differ sufficiently among the provinces that simple comparisons of this type are precisely that – simple comparisons. Considerably more scrutiny of the data would be required if this indicator were to inform policy making. Second, and more fundamentally, even if the data were accurate, there is not necessarily a correlation between inputs and final outputs. There may be substantial differences in the effectiveness with which institutions use available resources.

Final Outcome Measures

A second possible approach to measuring learning quality is to look at final outcomes of post-secondary education, on the assumption that the market will consistently and reliably evaluate learning quality. The presumption is that PSE graduates will only earn a salary premium relative to non-graduates if they truly are more productive, or that employment rates for these individuals will be higher only if university and college learning outcomes actually are achieved. The implication is that one could look for evidence on the relative quality of Ontario's colleges and universities by looking at their graduates' employment and earnings records compared to

otherwise-identical graduates from PSE institutions in other provinces and countries. To our knowledge, these calculations have never been attempted.

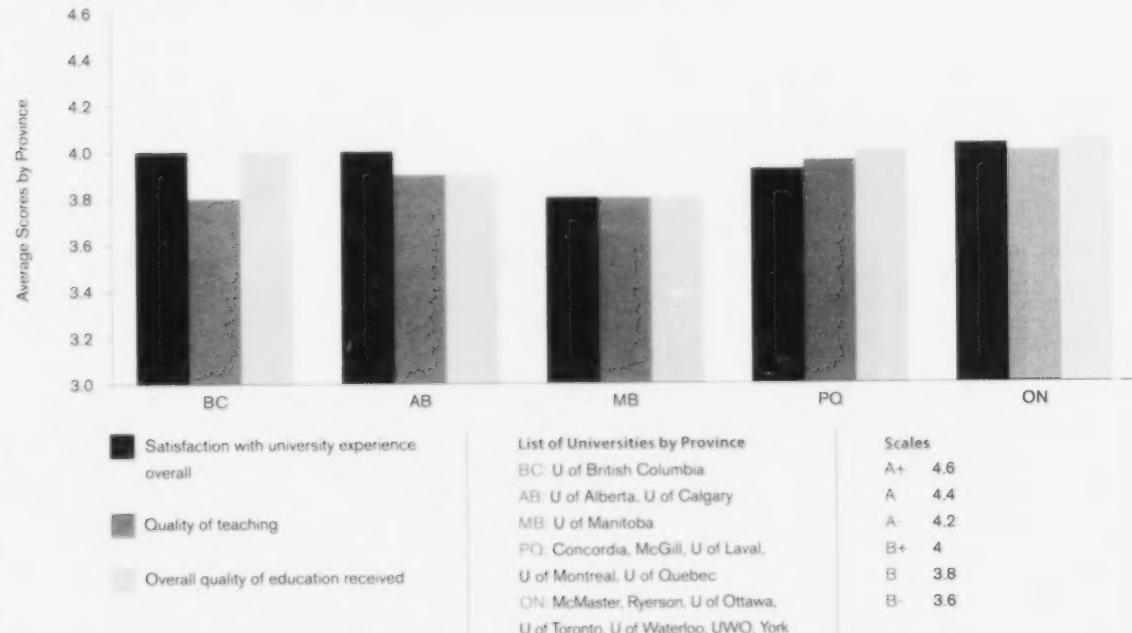
Satisfaction Surveys

One set of indicators commonly used to evaluate educational quality is student satisfaction scores. The presumption is that students are able to judge fairly the value of the educational experience. The surveys can be for individual courses and programs, or for an overall evaluation of a student's entire educational experience. In the former case, the surveys are mainly useful within the institution for purposes of academic planning and to evaluate faculty performance (Gravestock & Gregor-Greenleaf, 2008). In the latter case, they are frequently used to make comparisons among institutions within a particular PSE system, and occasionally even to make comparisons across systems.

The *Globe and Mail* produces a report card each year for Canadian universities. Figures 3.3 to 3.6 show the results of the 2007 survey. Universities are grouped into four size categories to make the comparisons more meaningful. The results of three summary questions are provided: satisfaction with university experience overall; quality of teaching; and overall quality of education received.

Figure 3.3

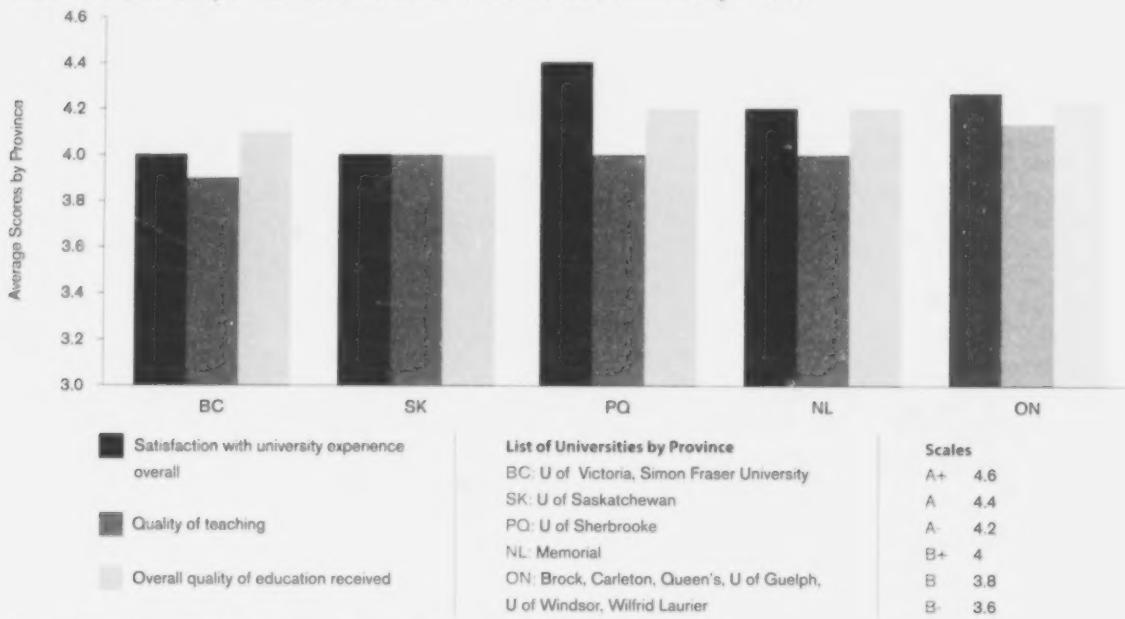
2007 *Globe and Mail* Report Card Results for Large (>22,000) Universities by Province



Source: *The Globe and Mail*, 2007 University Report Card

Figure 3.4

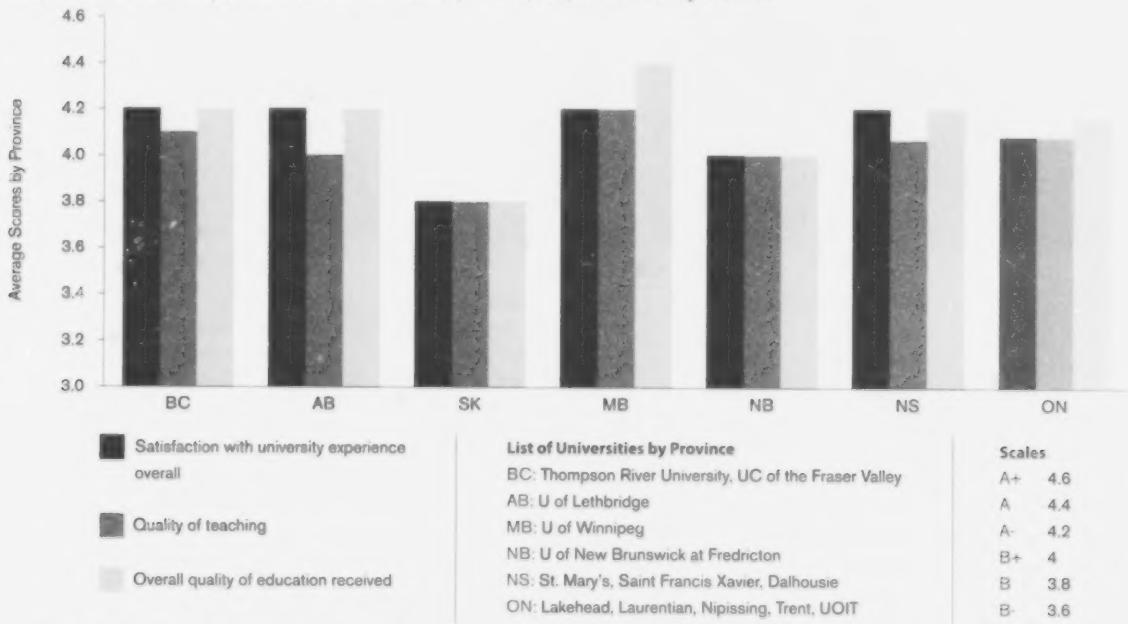
2007 Globe and Mail Report Card Results for Medium (12,000–22,000) Universities by Province



Source: *The Globe and Mail, 2007 University Report Card*

Figure 3.5

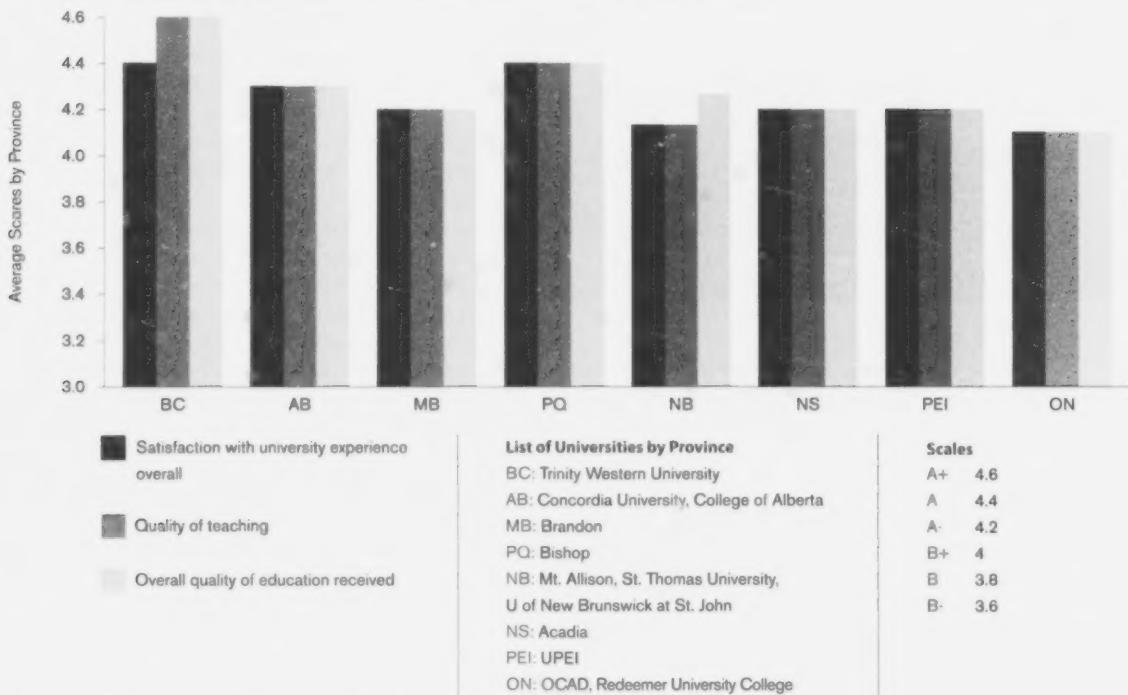
2007 Globe and Mail Report Card Results for Small (4,000–12,000) Universities by Province



Source: *The Globe and Mail, 2007 University Report Card*

Figure 3.6

2007 Globe and Mail Report Card Results for Very Small (<4,000) Universities by Province



Source: *The Globe and Mail, 2007 University Report Card*

For large universities (>22,000 students), Ontario ranks first among five provinces in all three categories of student satisfaction. For medium-sized institutions (12,000–22,000 students), Ontario leads in two of three categories, and is second to Quebec in the third (satisfaction with university experience). The picture changes in the cases of small and very small universities, however. For small institutions (4,000–12,000 students), Ontario ranks fifth among seven provinces in two categories, but does considerably better in the third – quality of teaching. In the very small category (<4,000 students), Ontario is last among eight provinces, although the two Ontario institutions in this category have very specialized missions and one of the two is not a public institution.

The National Survey of Student Engagement, discussed in more detail below, has some general satisfaction questions. Results for Ontario universities are publicly available, but those for institutions in other provinces are not and the same is true for the recently-completed Canadian Graduate and Professional Student Survey (CGPSS). Thus no inter-provincial comparisons are possible in either case at this time.

There are three unique surveys for Ontario colleges. The *Student Satisfaction Survey* is administered in class to all students beyond their first semester. Respondents indicate whether they feel the program is providing the knowledge and skills related to their expected future careers and provide feedback on the overall qualities of the learning experience, facilities and



vinces so the Ontario surveys cannot be used for comparative purposes; they can, however, be used to provide some time series information.

The results of the surveys for the college system as a whole do not support the interpretation of declining quality. The employer satisfaction score is virtually constant over the period 1999–00 to 2006–07, with just over 90% of respondents declaring they are satisfied or very satisfied with their employees' workplace preparation. The graduate satisfaction rating is also virtually flat over this period at just over 80%. The student satisfaction response rises slightly from 75% in 2000–01 (1999–00 data not comparable) to just over 77.9% in 2007–08.

Student Engagement

One promising avenue for judging educational quality is suggested by the literature on student engagement. There is considerable research to suggest that the time and energy students devote to educationally purposeful activities is the single best predictor of learning and personal development (Kuh, 2001).¹⁴ The implication is that the more colleges and universities engage their students in these types of activities, the higher the educational quality will be. Thus student engagement can serve as a proxy for learning outcomes.

Following on this basic research, survey experts developed instruments to measure student engagement. The best known of these attempts is NSSE operated by the Indiana University Center for Postsecondary Research. NSSE was conceived in early 1998, run as a pilot project in 1999 and formally launched in the spring of 2000. NSSE staff conduct the survey using student contacts provided by universities, and prepare summary statistics and comparative results for each institution.

Seven Ontario universities and four other Canadian universities participated in NSSE in 2004 and 31 Canadian institutions, including all 19 in Ontario, participated in 2006.¹⁵ Thus the tool is not very useful for providing a time series perspective on learning quality in Ontario because

resources and student services. The *Graduate Satisfaction Survey* asks students six months after graduation about the usefulness of their college education in achieving their goals. In a related survey, the *Employer Satisfaction Survey*, employers are asked for their satisfaction with the preparation their college graduates bring to the work place.

The surveys are mostly useful for monitoring the performance of the institutions themselves, and we return to this topic in Chapter 5 under accountability. There are no equivalent surveys in other prov-

¹⁴ A report prepared for HEQCO by CCI Research, Inc. (forthcoming) provides a comprehensive survey of the student engagement literature, with special reference to colleges.

¹⁵ A total of 473 colleges and universities participated in the 2004 survey and 557 did in 2006. (http://nsse.iub.edu/html/quick_facts.cfm)

there are only two observations, they are only two years apart and the sample of institutions changed. It is more useful from a comparative perspective, however, as Ontario's results can be compared to those for other Canadian and US respondents.

A key feature of NSSE is its examination of benchmarks of effective educational practice. There are five of these: Level of Academic Challenge (LAC), Active and Collaborative Learning (ACL), Student-Faculty Interaction (SFI), Enriching Educational Experiences (EEE) and Supportive Campus Environment (SCE). Each benchmark groups questions drawn from the larger survey that are believed to be the most important contributors to learning and personal development.

Figures 3.7 and 3.8 show a comparison of average benchmark scores for all Ontario universities compared to select (i.e. those for which data are available) other Canadian universities and Carnegie peers for first and fourth year students. Ontario universities report higher scores than those for other Canadian institutions for all five benchmarks. Ontario universities out-perform Carnegie peers in one category (enriching educational experience) in the case of first year students and in two instances (level of academic challenge and enriching educational experience) for fourth year students.

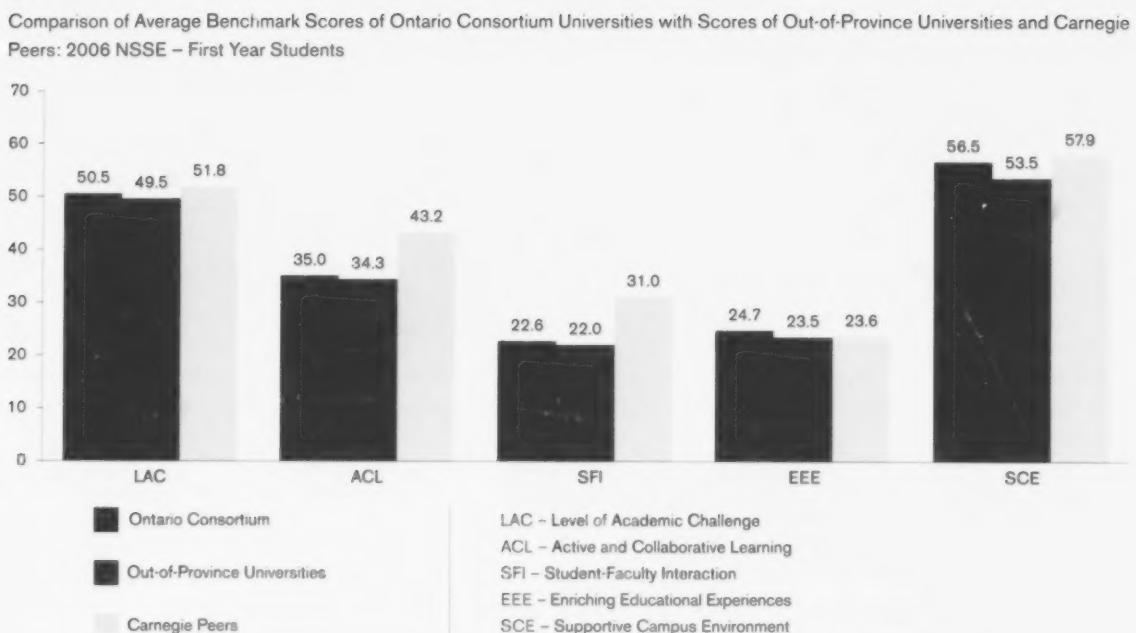
NSSE scores vary systematically with select student and institutional characteristics, however, (Kuh, Kinzie, Schuh and Whitt, 2005) so aggregate comparisons of this sort can be misleading. A better approach is to look at comparisons among similar institutions.

Figures 3.9 and 3.10 show a comparison of average 2006 benchmark scores of Ontario G-13 universities (i.e. large, research-intensive ones) with those for out-of-province G-13 universities¹⁶ and Carnegie peers for first and fourth year students. The average benchmark score for first year students in Ontario G-13 universities exceeds those for other G-13 universities in three of five categories (level of academic challenge, enriching educational experience and supportive campus environment), is identical in a fourth instance (student-faculty interaction) and lags behind in a fifth (active and collaborative learning). In four instances, Ontario's scores for first year students were lower than those for Carnegie peers, exceeding them only in the case of enriching educational experience.

A similar pattern holds for fourth year students (Figure 3.10). Average benchmark scores for Ontario G-13 universities exceed those for out-of-province G-13 universities in four of five categories, the exception again being active and collaborative learning. Ontario G-13 universities lag behind their Carnegie counterparts in three categories (active and collaborative learning, student-faculty interaction and supportive campus environment), are virtually identical in a fourth (level of academic challenge) and report a higher score for the fifth category (enriching educational experience).

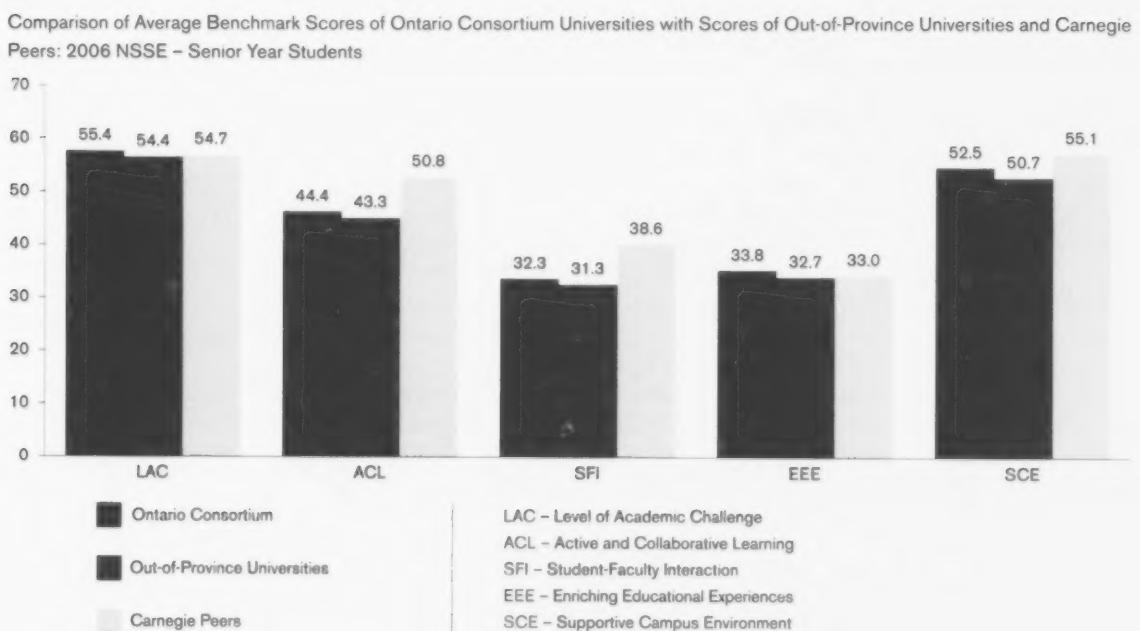
¹⁶ The G-13 universities are the large, research-intensive institutions in Canada. Six of these are in Ontario: McMaster, Queen's, University of Ottawa, University of Toronto, University of Western Ontario and Waterloo.

Figure 3.7



Source: Common University Data Ontario, NSSE 2006 Institutional Benchmark Report

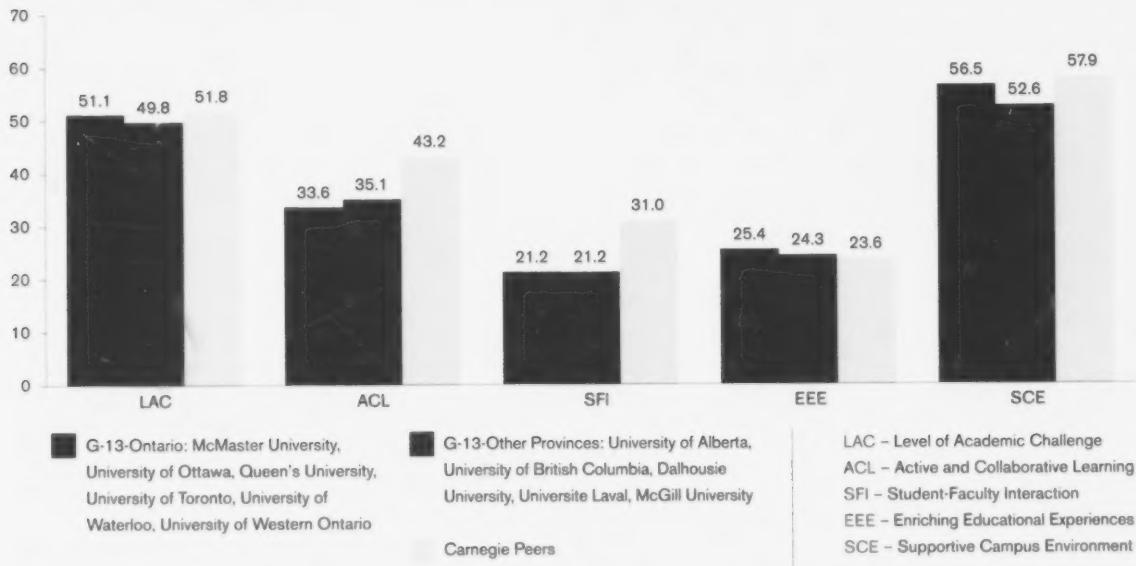
Figure 3.8



Source: Common University Data Ontario, NSSE 2006 Institutional Benchmark Report

Figure 3.9

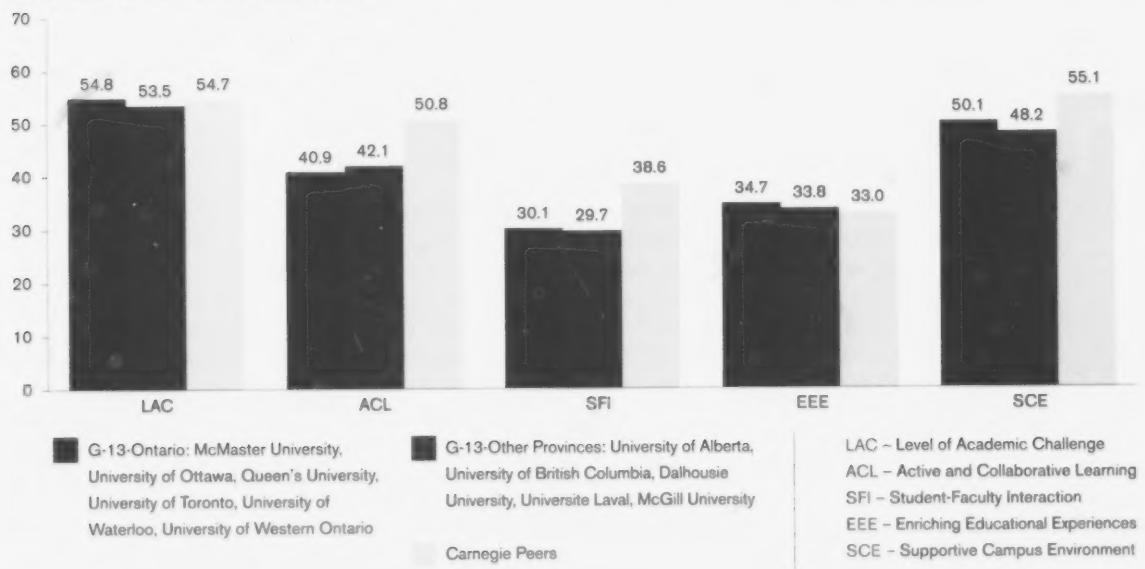
Comparison of Average Benchmark Scores of Ontario G-13 Universities with Scores of Out-of-Province G-13 Universities and Carnegie Peers: 2006 NSSE – First Year Students



Source: Common University Data Ontario, NSSE 2006 Institutional Benchmark Report

Figure 3.10

Comparison of Average Benchmark Scores of Ontario G-13 Universities with Scores of Out-of-Province G-13 Universities and Carnegie Peers: 2006 NSSE – Senior Year Students



Source: Common University Data Ontario, NSSE 2006 Institutional Benchmark Report

By this quality indicator, Ontario universities compare favourably to out-of-province institutions but generally unfavourably to US counterparts. The conclusion from the comparison to Canadian counterparts appears to be in direct contradiction to that generated by looking at input indicators. It is consistent, however, with conclusions drawn from comparing Ontario to US institutional resources.

A caution is in order at this point, however. We know that reported NSSE results vary systematically with institution and student characteristics. We also know that there is considerable variation in both sets of characteristics in the mix of universities represented in these figures, even within the G-13 category. Thus comparisons of this sort cannot be used for ranking purposes. They are only valuable as indicators of directions for further research.

Two obvious questions emerge from this brief overview. First, what explains the differences between Canadian and US institutions and why, in particular, are there such large differences in the two categories of active and collaborative learning and student-faculty interaction? Second, what explains Ontario's apparently relatively favourable position compared to Canadian G-13 institutions and how can these results be squared with the seemingly large differences in resources?

The US college counterpart to NSSE is the Community College Student Engagement Survey (CCSSE). Started in 2001, it was developed to address the need for a student engagement survey specifically designed for community and technical colleges (CCI, forthcoming, p. 37). CCSSE works in partnership with NSSE, and has several similar features such as benchmarks of effective educational practice, however, CCSSE has only been used by two Canadian colleges.

The current survey used to measure student engagement in Ontario colleges is the Ontario College Student Engagement Survey (OCSES). OCSES was originally the *Pan-Canadian Survey of College Students*, undertaken in 2005, with invitations to all members of the Association of Canadian Community Colleges (ACCC). The survey has its origins in the Freshman Integration Tracking System (FITS), originally developed in the 1990s. FITS is based upon Tinto's "person-environment fit" model which suggests that student success and retention are functions of the fit between the characteristics of the student (i.e. background, academic interests and skills) and the learning environment of the institution he or she attends. Additionally, FITS is used to identify students with a high likelihood of failure or voluntary departure. This information can be used to identify four student outcome groups; academically successful persisters, academically successful leavers, failed persisters and failed leavers (Dietsche, 1990, 1995).

In 2006, with some very slight revisions to the survey tool, the Pan-Canadian survey became OCSES. OCSES was only administered in Ontario but was open to students in all years of study, rather than just first year students. OCSES contains many of the same items as FITS, particularly those related to student attitude, student use of time and student services use. In addition, the survey also contains items related to finances, demographics and school background. Participation in OCSES is required by Ontario's Multi-Year Accountability Agreements; Fall 2008 marked its third year.

Currently, HEQCO is working with the college sector and MTCU to determine the most appropriate measure of student engagement and/or learning quality for Ontario colleges. The research plan has included two major stages: a review of engagement surveys in use internationally and nationally by colleges (as defined in the Canadian context), and a review of OCSES survey results for 2006 and 2007.

Conceptual and data issues notwithstanding, measures of student engagement are currently the most promising general indicators of learning quality. Thus HEQCO will make further research on NSSE a priority in the near future. Further, we will continue to work with our partners to assess the effectiveness of OCSES as an indicator of educational quality in colleges, and to investigate alternatives to OCSES as necessary and appropriate.

Value Added

The ultimate educational quality indicator is direct measurement of the value added in learning. The concept is simple and intuitive: compare learning outcomes over time or among institutions after standardizing for the beginning characteristics of students. The differences – the value added – can be more reliably attributed to the specific learning environment. The challenge comes with generating the data to carry out this calculation.

The best-known approach to value-added assessment is that of the Collegiate Learning Assessment, or CLA (Klein, Benjamin, Shavelson and Bolus, 2007). CLA is designed to test a student's competencies in critical thinking, analytical reasoning, problem solving and written communications. On-line tests are administered to a sample of a school's students. The value-added component for any cohort of students is equal to the actual mean CLA score of this group minus the mean CLA score it would be expected to demonstrate on the basis of Scholastic Aptitude Test (SAT) scores (representing student abilities). The value added for an institution is given by calculating the expected CLA scores for senior students and for first year students, and subtracting the latter from the former.

The gold standard version of the value-added approach to gauging learning quality is to test students for general and discipline-specific knowledge and abilities at the beginning of their programs and then again at the end, with perhaps some testing in between, i.e. following the students longitudinally. This approach is obviously complex and expensive.

Direct measures for assessing value added figure in HEQCO's long-term research plans. In particular, we are interested in running some value-added tests side-by-side with other quality measures such as NSSE or student satisfaction scores. If they are highly and consistently correlated, we could more confidently use the much cheaper latter indicators for evaluation purposes.

3.1.3 Observations

The objective of this section is to attempt to evaluate learning quality in PSE in Ontario. To that end, it provides a conceptual framework, surveys various empirical measures and reviews extant quality assurance processes.

The general picture that emerges is confusing and contradictory. Using per capita funding as an indicator, quality of Ontario universities appears to lag behind that of peer institutions in other provinces and particularly that of US counterparts. No US comparisons are possible for Ontario colleges, but their per-capita funding compares poorly to their counterparts in other provinces. However, other indicators, such as student and graduate satisfaction scores or NSSE engagement scores, paint a different picture. Ontario's universities compare favourably to those in other provinces, but less so to their US counterparts. Again, no such comparisons are possible for Ontario colleges; however, time-series evidence for these institutions shows no apparent downward trend.

Clearly, considerably more research is needed before we can make any definitive statements about educational quality in Ontario, on either a comparative or a time-series basis. This is an important line of enquiry for at least two reasons. Most obviously, quality indicators must feature prominently in any comprehensive PSE accountability framework. Further, developing quality indicators that truly capture educational outputs is essential to understanding the connections between educational quality and the amount and structure of underlying funding.

3.2 Quality Assurance

Quality assurance (QA) eschews formal measurement in favour of qualitative evaluation, although some aspects of QA may be presented empirically. The QA approach has grown rapidly in recent decades; the International Network of Quality Assurance Agencies in Higher Education (INQAAHE) had membership in 81 countries in fall 2008 (INQAAHE, 2008).

There is no obvious way to use the QA approach to judge changes in PSE quality over time, other perhaps than to note when processes were put in place and infer that quality enhancement must have followed. The approach is more obviously useful for making quality comparisons among jurisdictions. The approach in this case is to identify QA processes in place in a given jurisdiction (Ontario in our case) and compare them to acknowledged best practices in other provinces or countries.

3.2.1 Quality Assurance at a Glance

The literature generally distinguishes among three approaches to quality assurance: assessment, audit and accreditation.¹⁷

Quality assurance through assessment is generally directed at the program, subject or department level. Assessment processes rely on a combination of performance indicators, self-study and peer review. The assessment can be carried out by an external body, by a consortium of institutions or within an institution. Generally, it looks at resources as well as program outcomes. The results are typically published in a format that permits comparisons with other programs. Quality is defined relative to an institution's mission statement rather than to purely external standards. The assessments are cyclical, recurring on a predictable timetable. They can be periodic reviews of existing programs or quality checks on proposed new initiatives.

Quality assurance through audit involves a general review of an institution's internal processes. The assumption is that good processes will produce good results, and that poor processes will stymie even the best-intentioned attempts to promote quality. Audits typically pose two basic questions: are the processes in place for quality assurance adequate, and are they being followed? Audits look at a random sample of internal program assessments. They generally do not look at resource issues. Like assessments, they typically involve self-study, use of performance indicators and external peer reviewers.

Quality assurance through accreditation means recognition by a validating body. Accreditation may be for professional programs such as medicine or engineering, or it may be for the entire institution. Generally the goal is to determine whether a program or institution meets a certain minimum threshold with respect to quality standards. The verdict is typically pass or fail.

¹⁷ This summary is drawn from Van Loon (2008). See also Oldford (2006) and Randall (2008).

Van Loon concludes from his review of practices in other nations and provinces that there are several features common to quality assurance processes: a supervisory body, self study, a site visit by external reviewers, a report with recommendations, a response by the unit being evaluated and provision for follow up by the supervisory body. We shall adopt these descriptors as necessary features of a "best practices" quality assurance process, adding the condition that the results of the quality assessment are made public (Oldford, 2006, p. 97).

3.2.2 Quality Assurance in Ontario

Responsibility for quality assurance in Ontario's colleges and universities rests primarily with the institutions themselves, represented by their respective associations. There are five processes in place currently for public institutions.

University Undergraduate Programs

The Undergraduate Program Review Audit Committee (UPRAC) oversees university undergraduate degree programs (Council of Ontario Universities [COU], 2008). UPRAC, established in 1996, operates as a unit of the COU under the direction of the Academic Vice-Presidents and carries out quality assurance through an audit process. Institutions are responsible for assessing the quality of existing and new undergraduate programs and UPRAC audits the processes in place to approve and implement them.

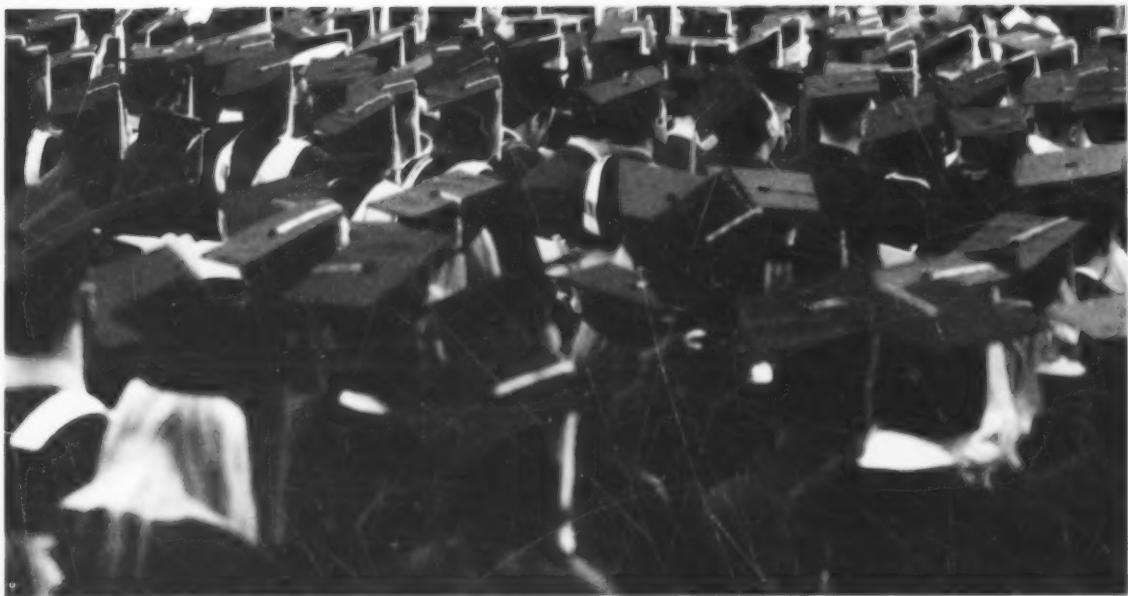
Most of the requisite features of a best practices approach are in place in the UPRAC process. The university undertakes a self-audit. There is a site visit involving external reviewers drawn from a panel consisting of retired faculty with experience in academic planning. The review team issues a report with recommendations and the institution has an opportunity to respond. The final report goes to the council of Academic Vice-Presidents for follow up action as necessary. The audits are conducted on a seven year cycle. Reports are widely circulated within institutions for use by relevant committees and planning authorities. They are not posted although the general public may request copies.

In contrast to the situations in some other provinces, notably British Columbia and Alberta, there is no provision in Ontario for external review of new undergraduate program proposals. This authority remains with the Senates of the respective institutions.

University Graduate Programs

For university graduate programs in Ontario, responsibility for quality assurance rests with the Ontario Council of Graduate Studies (OCGS), another unit of COU. OCGS dates back to 1968, making it an early example of quality assurance not only in Canada but also internationally. Currently, OCGS conducts quality assurance through assessment. New graduate programs must be assessed and approved to commence before they can receive government funding and admit students. Ongoing programs are reviewed on a seven year cycle and must be approved for continuation.

Most features of a best practices quality assurance process are in place. The unit undertakes a self study and prepares a report. There is a site visit by external experts chosen by an OCGS appraisals committee. The experts submit a report with preliminary findings and recommenda-



tions, and the institution has an opportunity to respond. OCGS is responsible for follow up actions as appropriate. The report is not made public.

OCGS underwent a major review recently with a recommendation that the process be altered significantly. This restructuring is underway at the time of writing [October, 2008].

College Programs

The passage of the *Colleges of Applied Arts and Technology Act* in 2002 brought about a significant change in quality assurance for colleges. Responsibility for quality assurance at the program level was vested with the Credentials Validation Service (CVS) which became operational in February 2005. Its mandate is to provide reasonable assurance that all programs of instruction leading to a college credential are consistent with accepted college nomenclature and program titling principles. The process is basically one of assessment. Colleges submit program proposals to CVS staff who evaluate the institutions' submissions against MTCU's "Framework for Programs of Instruction" document. There is no external panel and no public posting of the validation decisions.

College System

Responsibility for quality assurance at the institution level was vested with the Program Quality Assurance Process Audit (PQAPA) (Ontario College Quality Assurance Service [OCQAS], 2007, p. 4). The PQAPA model was developed through a joint government-college working group between 2003 and 2005, and approved for implementation in January 2007. An international expert evaluated the PQAPA model and its implementation during a pilot phase in the fall of 2006, and confirmed that "the PQAPA reflects global best practices and is well suited to the needs of the Ontario college system at this time" (OCQAS, 2007, p. 3).

PQAPA follows an audit approach, with the central feature being a cyclical review of each college's program quality assurance processes. All features of a best practices approach are evident. The audit is conducted by an external panel and involves a self study and a site visit. The draft report of the audit committee is forwarded to the college for a response and the panel makes whatever changes to the report it deems appropriate. The panel reports to the PQAPA management board, which has responsibility for producing a final report. The final audit report is made public.

The Ontario College Quality Assurance Service was established in January 2007 to bring together the CVS and PQAPA. Its mandate is to "provide effective and efficient mechanisms that ensure specific program quality and consistency standards are met by the Colleges of Applied Arts and Technology in Ontario" (OCQAS, 2008). OCQAS operates within the structure of Colleges Ontario (CO) and is intended to operate independently of any individual college or the Ministry.

Postsecondary Education Quality Assessment Board

The final quality assurance agency is the Postsecondary Education Quality Assessment Board (PEQAB). PEQAB was established in 2002 pursuant to the Postsecondary Education Choice and Excellence Act (2000) which governs degree granting and the use of the term university in Ontario. PEQAB reviews all applications for Ministerial consent to offer degree programs.¹⁸ Like OCGS, it uses an assessment process and strikes an expert panel to review the quality of each program against the Board's standards. Each panel normally consists of three members. The panel assesses the quality of the proposed program against the Board's standards and the Minister's requirements and prepares a report with recommendations. The assessors' reports are not made public, although the recommendation of the Board to the Minister is public.

3.2.3 Quality Assurance at the National Level

There has been some progress recently in quality assurance at the national level. Thus the Council of Ministers of Education Canada (CMEC) recently released a *Ministerial Statement on Quality Assurance of Degree Education in Canada* in April 2007 (CMEC, 2007). The statement draws extensively on international quality assurance initiatives, in that it has a degree qualifications framework. The degree framework and standards have their origins in PEQAB framework and standards.

The Ministerial Statement has three sections. The first section sets out the most salient general aspects of the three main degree levels offered in Canada: Bachelor's, Master's and Doctoral. The descriptors cover emphasis on program design and outcomes, preparation for employment and further study, and length of program and admission requirements. The second part of the first section sets out the expectations for graduates of each degree in six categories: depth and breadth of knowledge; knowledge of methodologies and research; application of knowledge; communication skills; awareness of limits of knowledge; and professional capacity/autonomy.

Section 2 of the statement is the "Procedures and Standards for New Degree Program Quality Assessment". The procedures for assessing a new degree program include the institution's written proposal for the program, discussions with officials of the institution, a site visit when necessary, a review report by an independent panel of experts and the institution's response to

¹⁸ Ontario's publicly-assisted universities derive their degree-granting authority through acts of the Legislative Assembly.

the report. This section also contains standards of the review report with ten commonly used elements listed including degree level, academic policies, program content and delivery, governance, human and physical resources, credential recognition, regulation and accreditation, and program evaluation.

Section 3 sets out "Procedures and Standards for Assessing New Degree-Granting Institutions". The procedures for assessing new degree-granting institutions are the same as those for the assessment of new degree programs. The standards, however, are different. There are twelve elements including mission statement and academic goals, governance, administrative capacity, faculty and staff, information services/systems, physical plant, ethical conduct, academic freedom and integrity, financial stability, student protection, dispute resolution and periodic review.

Ontario adopted the Ministerial Statement and quickly extended it with the creation of the Ontario Qualifications Framework (OQF). The OQF is designed to set up a qualifications framework for all postsecondary certificate, diploma and degree programs offered in Ontario, including apprenticeship certificates, the qualifications to be phased in for private career colleges, the qualifications awarded by public colleges, and university degrees. The descriptors are adopted from the "Canadian Degree Qualifications Framework". The expectation is that these qualifications will be explicitly incorporated into all Ontario PSE programs.

3.2.4 Observations

According to the usual criteria, Ontario appears to be well served by its quality assurance processes. All parts of the PSE sector are covered and the processes in place generally follow recognized practices in other jurisdictions. Two questions remain, however. First, are there alternatives to the current arrangements that could deliver quality assurance at less cost to the government and the institutions? Second, how do we know that that intended educational outcomes are actually being achieved?

3.3 Inside the Black Box

What can be done to enhance learning quality? Addressing this question means exploring the "black box" in the Finnie-Usher model, which in turn means looking at the two main components of the educational process: academic learning associated with courses and programs, and personal development associated with student support services.

3.3.1 Academic Learning

With respect to academic learning, HEQCO sponsored a major international conference, "Taking Stock: Symposium on Teaching and Learning Research in Higher Education", at the University of Guelph in April 2008. The conference was organized by Julia Christensen-Hughes of the University of Guelph and Joy Mighty of Queen's University, and brought together leading international experts on teaching and learning. The conference was organized around three general questions:

- What do we know about how students learn?
- How well does this knowledge align with how we teach?
- Where they are not aligned, what are the obstacles to reform?

The conference featured two keynote address, four panels, three sets of facilitated roundtable discussions and ample opportunity for general discussion. The conference proceedings, supplemented by three invited commentaries, will be published in a forthcoming volume.

The editors summarize the research presented at the conference in the following manner (Christensen-Hughes & Mighty, forthcoming):

- There is a relationship between how faculty teach and how students learn. When faculty teach in traditional ways, students tend to adopt surface-learning strategies. When faculty teach in non-traditional, student-centred ways, students tend to adopt deep learning strategies.
- There is a relationship between how students learn and the learning outcomes achieved. Surface learning approaches result in poor short-term retention, poor understanding, and more novice approaches to learning and beliefs about knowledge and the discipline, whereas deep-learning strategies result in better short-term retention, improved understanding, and more expert approaches to learning and beliefs about knowledge and the discipline.
- There is much faculty can do in support of deep learning through enhanced lectures and effective assessments practices.
- The majority of faculty teach in traditional ways, however, resulting in system-wide learning deficits

HEQCO will continue to work with interested researchers to develop our understanding of how to identify and implement effective teaching and learning practices in Ontario's colleges and universities.

There is much to learn about effective teaching and learning but there is much we already know that is not widely put into practice.¹⁹ The challenge in these cases is to provide effective platforms for researchers and practitioners to access, share, extend and mobilize knowledge on exemplary teaching and learning. To this end, HEQCO is supporting an extensive effort to develop an appropriate infrastructure for Ontario's colleges and universities. The proposal is set out in Carey (2008) and will be developed in the next two years through a series of invitations to colleges and universities to participate in an endeavour with the working title "Knowledge Mobilization for Exemplary Teaching and Learning". Details will be posted on the HEQCO website as the project progresses.

3.3.2 Student Services

Student services have traditionally been thought of as a component of a quality educational experience, but typically in a complementary role to academic activities. The more recent concept of a transformative educational experience, however, views these services as an essential part of an integrated and holistic learning experience (The National Association of Student Personnel Administrators, 2004).

This view stems from the premise that, "learning is a complex, holistic, multi-centric activity that occurs throughout and across the college experience" (p. 6). Further, "transformative education... places the student's reflective processes at the core of the learning experience and asks the student to evaluate both new information and the frames of reference through which the information acquires meaning" (p. 9). The connection to student affairs is apparent. Extra-cur-

¹⁹ This is an example of the "knowing-doing" gap (Pfeffer & Sutton, 2000).

ricular activities available through clubs and other types of organizations provide opportunities for students to develop and practice skills such as leadership, time management, collaboration, and goal setting (p. 11).

HEQCO will place considerable emphasis on research into student services in the next two years. We are interested in particular in working with colleges and universities to evaluate the effectiveness of specific programs with a view to identifying promising practices that could be disseminated to the sector more generally. To that end, we issued an invitation to all Ontario colleges and universities in summer 2008 to submit research proposals. Details will be available on our website as they become available.

3.3.3 Observations

The objective of this section is to survey what we know about how to improve learning quality, both formal academic learning and personal development. We can summarize our understanding to date in three general points. First, teaching and learning experts generally agree that, with notable exceptions, there is a significant gap between what we know about how students learn and how we teach. Second, closing this gap will require, among other initiatives, a platform for accessing, sharing and developing knowledge about teaching and learning. Third, student services are an essential and integrated component of quality learning.

3.4 Retention and Graduation Rates

The second feature of a quality educational experience is that students are able to complete programs satisfactorily and to do so in a reasonable amount of time. This expectation applies to all students of course, but from a policy perspective it is of particular interest with respect to those from traditionally under-represented groups.

We noted in the introduction to the chapter that completing programs in a "reasonable" period of time does not necessarily mean "as fast as possible". The first challenge is thus to define the expectation more clearly.

3.4.1 Defining the Issue

Two common measures of success are retention rates and graduation rates. Typically, the retention rate refers to the proportion of students registering in the first year (term) of a multi-year program who return the following year (term). The graduation rate is the proportion of students entering a program who complete it successfully in a specified period of time, obtaining the associated degree, diploma or certificate.

Setting targets for these rates is a complex task, however. Consider the options for a student registering in the first year of a college or university program in Ontario:

1. Continue in the same program and institution for a second year
2. Continue in the same institution for a second year but in another program
3. Continue in the same program for a second year but at another institution
4. Switch in the second year to another program and institution
5. Drop out but return in a future year to the same institution and program

6. Drop out but return in a future year to the same institution but another program
7. Drop out but return in a future year to the same program at another institution
8. Drop out but return in a future year to another institution and program
9. Drop out and not return

These are important distinctions for at least three reasons. The first is a data issue. From an individual institution's perspective, students in categories 3–9 will be recorded as drop-outs in current year's data. But from a system-wide perspective, only the final choice is a certain non-completion. The first statistic is relevant for the institution's planning purposes; the second is the one of interest to society in general.

It is also important to know the factors behind these outcomes. Switching programs may mean the student made an initial choice on the basis of inadequate or misleading information; if so, there is a case to be made for a better information system. However, it may equally reflect a fuller appreciation of the student's real interests and talents, in which case the switch is beneficial. Similar considerations apply to a decision to switch institutions.

It is important as well to know the factors behind a decision to drop out and not return. This outcome may reflect poor secondary school preparation, poor college or university admissions procedures, inadequate academic and extra-curricular support services, or financial constraints. In these instances, there is cause for concern and a role for attention by both government and institutions. But sometimes students leave before completing their studies because they have secured remunerative employment. This is often an issue for graduate students, for example, especially in engineering, health sciences and business and in this case it is difficult to see this outcome as a cause for concern.

Finally, the array of choices illustrates clearly that satisfactory progress through a program does not generally mean "as fast as possible". Decisions to switch programs or institutions, or to stop out and then return, may reflect rational decisions by individuals. Further, the ability to complete a program part time over an extended period is important to many adult learners.

3.4.2 The Literature

The persistence literature looks at the determinants of PSE drop-out rates. The main model is that of student integration (Tinto, 1975, 1993). Tinto recognizes that students enter PSE with certain characteristics, such as age, gender and parental education, that will determine their initial educational goals and commitments. Once in the system, their academic and social experiences will further determine their persistence.

The empirical evidence on persistence in the US can be summarized as follows. Those with higher persistence rates on average are young²⁰, single²¹, female²², Asian²³, with a high grade point average from high school, from a higher socioeconomic status²⁴ with high parental edu-

20 Grayson & Grayson (2003)

21 Drea (2004)

22 Grayson & Grayson (2003)

23 Donner & Lazar (2000)

24 Grayson & Grayson (2003)

cation levels²⁵, attending a university full time²⁶, live on-campus²⁷ at a large institution²⁸ and receive subsidy by grant funding.

The persistence literature in Canada attempts both to estimate retention and graduation rates (or, conversely, drop-out rates) and to explain them (Finnie & Qiu, 2008). The Canadian literature is much more limited, in large part because of data limitations. In Ontario, for example, retention and graduation data are collected at the institutional level. Accordingly, most of the research on non-completion rates is for specific colleges or universities. These results vary significantly depending on the criteria employed. Generally, however, analysts find first year drop-out rates for specific institutions of 20–25% and non-completion rates of 30–40% (Finnie & Qiu, 2008, pp. 10–12; Grayson & Grayson, 2003; Donner & Lazar, 2000).

This data limitation poses a significant problem from a public policy perspective as it treats students who transfer to another institution, or who drop out and then return, as non-completers. Persistence rates for the PSE system as a whole are almost certainly under-reported as a consequence.

A recent study by Finnie and Qiu (2008) illustrates the importance of this point. Using YITS-B data,²⁹ they are able to follow a cohort of students longitudinally, thereby picking up switchers and temporary drop-outs. The results are dramatic. The simple graduation rate for Canadian universities is 52.1%, meaning that just over half of students in the sample graduated within five years from the program in which they first registered. Adding those who graduated from other programs brings the figure up to 69.4%. Adding those still in PSE (wherever registered) brings the figure to 89.8%. The figures for colleges are 56.5%, 73.1% and 81.9% (p. 43).

Finnie and Qiu are also able to use YITS-B data to examine the determinants of persistence in Canadian PSE. They specify and estimate a model that relates the probability of a student switching programs or leaving PSE to a range of explanatory variables. Some of these represent socioeconomic characteristics of students: gender, age at enrolment, immigrant status, visible minority status, parental education and family type. Others capture academic preparations: average overall grade in high school, and high school academic and social engagement. Still others define financial factors: scholarship recipient, grant recipient and student loan recipient.

The results of the regression model are numerous. Among the most significant findings, they note that females, immigrants and visible minorities tend to switch programs and leave PSE less than males, non-immigrants and non-minorities, although there are differences between colleges and universities (p. 44). Those entering PSE at a very young age are less likely to leave their programs while those starting university for the first time at age 21 or older have much higher leaving rates (p. 44). Family background effects are mixed.

25 Finnie & Qiu (2008)

26 Grayson & Grayson (2003)

27 Liu (2008)

28 Grayson & Grayson (2003)

29 See Cheung (2007) for a discussion of the YITS data.

Financial variables are of obvious interest. Scholarship students are less likely to leave although Finnie and Qiu interpret this as an ability effect as it disappears when grade averages and related variables are entered (p. 45). Student loan effects are small and difficult to interpret (p. 45). The negative effect of the grant variable on leaving is more robust than that of the other financial variables, at least for college students (p. 45).

The authors observe some regional effects. College students in Quebec and British Columbia switch more often than those in other provinces, likely reflecting the existence of CEGEPs and formal university transfer programs respectively (p. 45). University students in Atlantic Canada, the Prairies and British Columbia are more likely to leave PSE after starting their first programs than are those in Ontario and Quebec.

3.4.3 The Situation in Ontario

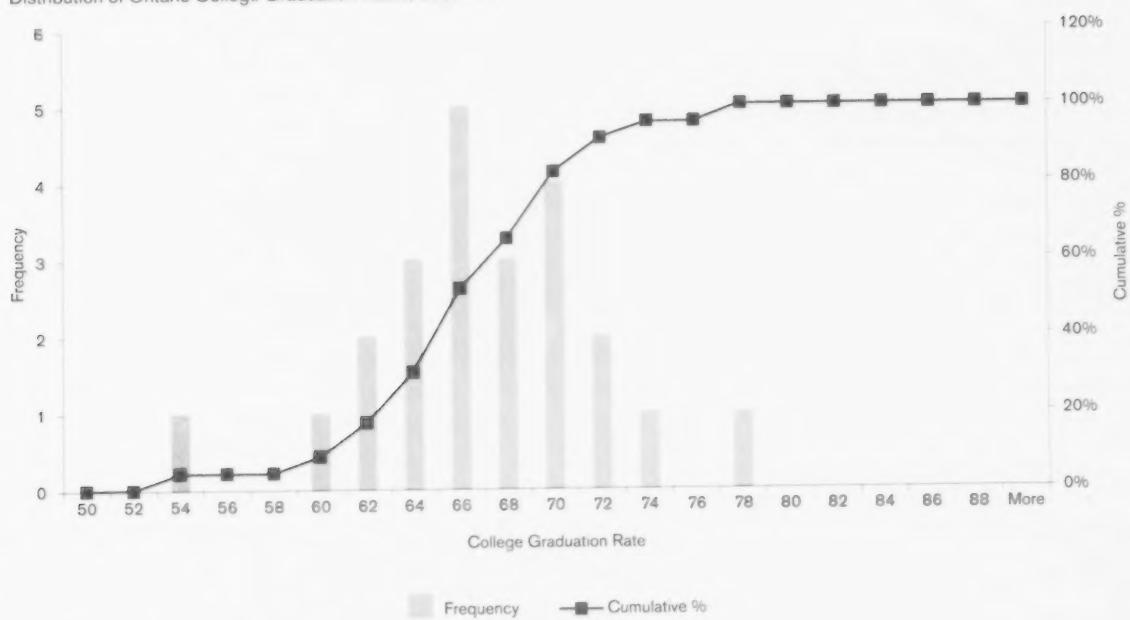
The only data available for Ontario come from material provided by institutions to the government for reporting purposes. Colleges are required to report graduation rates as part of their Key Performance Indicators (KPIs).³⁰ The rate they report is based on the proportion of students who complete one-year programs within two years, two-year programs within three years, three-year programs within five years and degree programs within seven years.

The average (weighted by student numbers) graduation rate for Ontario colleges as reported in the 2006–07 KPI survey is 64.9%. Figure 3.11 shows the distribution of graduation rates among colleges. The vertical axis is the number of institutions and the horizontal axis is the college graduation rate. The range of graduation rates is significant, from a high of 77.4% for Collège Boréal to 53.7% for Seneca College. The vast majority of the results lie in the mid-60s to low 70s range. The cumulative distribution is relatively flat to 60%, rises steeply to 72% and is relatively flat again thereafter.

³⁰ KPIs are discussed in Chapter 5.

Figure 3.11

Distribution of Ontario College Graduation Rates, 2006–07



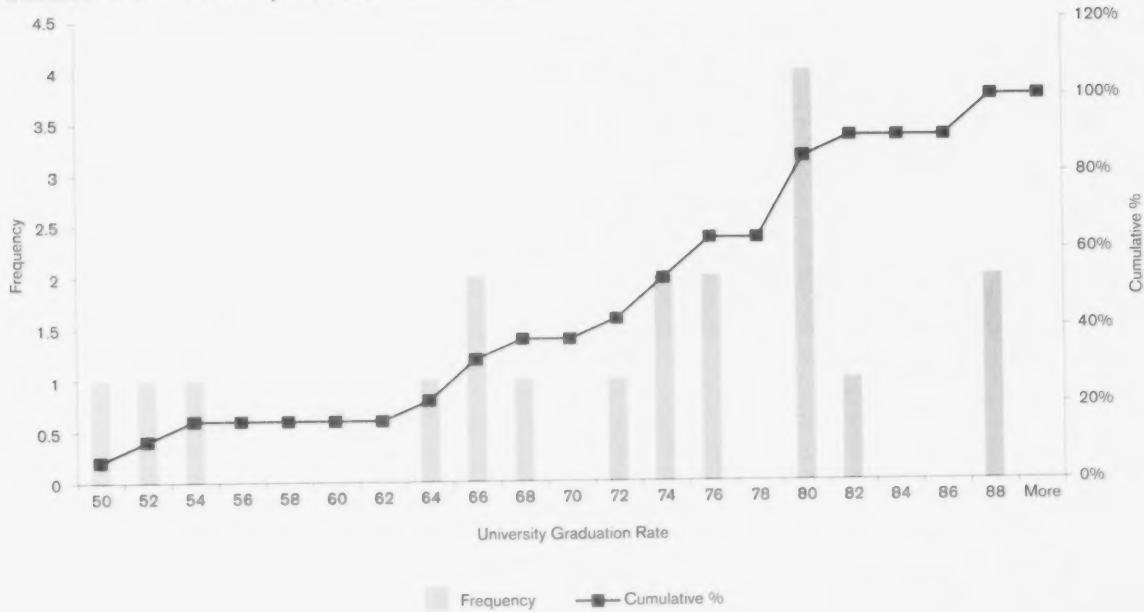
Source: Colleges Ontario, KPI survey of 2006–07 graduates

The university graduation rate is the percentage of first year students entering bachelor's or first degree professions programs who complete requirements within 7 years. University figures come from the Consortium for Student Retention Data Exchange (CSRDE).

The reported weighted average graduation rate for universities is 75.6%. Figure 3.12 shows the distribution of graduation rates among Ontario universities. They range from a high of 86.9% for Queen's University to 49.6% for Algoma University. The rates are notably more dispersed for universities than for colleges. Further, there are distinct clusters, with notable gaps in between. The cumulative distribution is relatively flat to 64%, rises consistently to 80% and is relatively flat again thereafter.

Figure 3.12

Distribution of Ontario University Graduation Rates, 2006–07



Source: Common University Data Ontario, KPI Survey of 2006–07 graduates

3.4.4 Observations

The objective of this section is to introduce the literature on retention and graduation rates, and to evaluate the ability of Ontario PSE students to complete their PSE programs in a reasonable time period.

Unfortunately, we are not able to judge this aspect of Ontario's PSE system at this time. The problem, as noted, is the lack of appropriate data. Information on retention and graduation rates is collected by colleges and universities, and pertains only to their own institutions. A student switching institutions, or stopping out and then returning, is recorded as a drop out. The Finnie-Qiu study illustrates the extent to which drop-out rates based only on institutional data are over-stated.

Without longitudinal data for Ontario students, it is not possible to analyze in any rigorous fashion the determinants of decisions by students to switch programs or to stop out and eventually return to PSE. The analysis by Finnie and Qiu provides some interesting insights into this important issue, but more analysis is needed, with more complete Ontario data.

It is important, in closing, to stress two points. First, completing PSE programs at an appropriate rate does not always mean completing them as quickly as possible. Students switch programs or institutions or stop out for a variety of reasons. We need to understand better the factors behind these choices. Specifically, we need to be able to distinguish choices that re-

flect conscious attempts by students to choose more suitable pathways from those forced on individuals by financial or other such circumstances. To reiterate, this objective requires much better data on how Ontario students progress through the PSE system.

Second, recognizing that retention and graduation rates vary systematically with student characteristics, and recognizing that student profiles vary among institutions, we should not be surprised by the spread in retention and graduation rates among colleges and universities. From a quality standpoint, the challenge is to distinguish between differences in these rates due to student characteristics and those due to institutional efforts. We return to this point below when discussing accountability measures.

3.5 Labour Market Responsiveness

The third educational quality expectation is that the PSE program options are appropriately responsive to the province's labour market needs. As noted at the beginning of this chapter, this is not to imply that education is undertaken solely, or even mainly, for job market reasons, but it is nonetheless a legitimate perspective to bring to bear when evaluating educational quality. The economic return is an important consideration for an individual enrolling in PSE, and the more responsive the PSE system is to market conditions the greater will be this return. More generally, society's interest in fulfilling human capital needs will also be more effectively met by a responsive system.

3.5.1 Defining the Issue

There is considerable concern in Ontario and in Canada more generally that labour market needs are not currently being met and that they will not be met in future without significant policy intervention. It is important, in evaluating this concern, to distinguish two separate issues. The first issue is a concern about an aggregate labour shortage over time (Conference Board of Canada, 2007). Demand for labour in Ontario is expected to continue to grow as a consequence of continued economic growth. The supply of labour is projected to grow relatively more slowly, or even decline, as a consequence of population aging, lower levels of immigration and outmigration of Ontario workers to the booming western provinces.

The Conference Board recommends actions to increase labour force participation rates, in particular those for youth at risk, women, mature workers, new and recent immigrants, the Aboriginal population and persons with disabilities. Since the vast majority of future jobs will require education and training, the implication is that policy efforts should focus on increasing PSE participation in general and in traditionally under-represented groups in particular.

A second issue is concern about labour shortages in specific industries or occupations. The methodology is the same as above, only applied at a much more detailed level. The projected demand for labour is compared to the projected supply of labour for specific occupation groups. The degree of disaggregation can vary from quite general (e.g. managers) to very specific (managers in art, culture, recreation and sport).

Labour markets at this disaggregate level are typically in a constant state of flux, so projections of this sort will almost certainly find conditions of excess demand or excess supply. The relevant question is whether such imbalances are self-correcting or whether policy measures are necessary. Take the example of a projected labour shortage in one or more occupations requiring PSE credentials. The situation will be self-correcting if the following conditions hold.



The first condition is that labour markets signal skill shortages and surpluses through relative wage and salary changes. Skills in relatively short supply will experience rising relative compensation, while those with excess supply will experience the opposite condition. Wages and salaries may not adjust immediately, in which case occupational shortages and surpluses will be reflected initially in relative changes in vacancies and unemployment rates.

The second condition is that individuals factor expected life-time earnings into their decisions to attend or not attend PSE, and to their choice of institution and program when registering. Wages and salaries that are rising relatively will attract additional applications for programs geared to these occupations, while the opposite is true for occupations in relative decline. Changes in vacancy and unemployment rates by sector serve the same function. Note that this adjustment mechanism does not presume that all PSE applicants will shift preferences, only those for whom the switch is natural and feasible.

The third condition is that colleges and universities will respond to changing application patterns by adjusting target enrolments and by altering the mix of programs they offer. Beyond a sincere wish to accommodate student needs as far as possible, institutions have at least two incentives for responding to shifting preferences. One, there is considerable competition for top students and program availability is a key factor in student choice. Two, government funding generally follows student numbers and tuition revenue certainly does so. Thus institutions have very real incentives to respond to labour market signals as transmitted to them through shifting application patterns.

For systematic skills shortages to occur therefore, there must be significant stickiness in one or more of these adjustment mechanisms. Perhaps labour markets are not sufficiently flexible to signal changes in excess demand and supply situations; perhaps individuals do not quickly and accurately take relative earnings into account when making PSE decisions; or perhaps

colleges and universities are unable or unwilling to adjust enrolments and program offerings in response to shifting application patterns.

In principle, it is possible to test which set of conditions holds by examining time series data for relative wages and unemployment rates among occupations. If imbalances are largely self correcting, we should observe relatively smooth time series for wages, salaries and unemployment rates by occupation, and relatively spiky time series for PSE program registrations. The converse will hold if one or more of the adjustment mechanisms has some degree of stickiness.

The Strategic Policy Research Directorate of Human Resources and Social Development Canada prepares annual projections of labour market conditions for Canada. The analysis addresses the following questions (HRSDC, 2007, p. 7):

- "How many jobs are expected to be created over the next decade?
- In which industries and occupations will the new jobs emerge?
- What will be the impact of retirements on job openings?
- What kind of education is required to fill the new positions?
- Will the new supply be sufficient to meet this new demand?
- What occupations will face significant labour market pressures?"

HRSDC uses times series evidence on relative real wages and relative unemployment rates to look for sustained gaps between demand and supply for labour by skill level and for specific occupations. From a broad skills perspective,³¹ they show that relative real wages and relative unemployment rates have remained virtually flat since 1987. The implication is that, "it appears that the strong rise in demand within high-skilled occupations has been adequately met by a growing supply of qualified workers" (HRSDC, 2007, p. 26).

The picture alters somewhat when the same analysis is applied to times series for relative wages and relative unemployment rates by education level. Here the study finds that relative wages and unemployment rates have apparently declined for university graduates and for those with less than a high school credential. One possible explanation of the trend for university graduates is that they are taking jobs requiring less than a university qualification. HEQCO will be undertaking further research on this high-education, low income paradox.

Moving to a more disaggregated level produces more evidence of excess demand or excess supply in labour markets. HRSDC provides a list of occupations showing signs of excess demand in the period 2003–05. Most were in occupations requiring university, college or apprenticeship training. In total, they represented 11.4% of total employment in 2005 (p. 29). There is a much shorter list of occupations showing signs of excess supply. Most of these, not surprisingly, require only a low skill level.

The HRSDC analysis is only available at the national level, so it is not possible to report results for Ontario. The challenge lies on the supply side as inter-provincial mobility makes it difficult to link PSE attainment in Ontario to labour supply in the province. Ontarians can graduate and take jobs in other provinces, and graduates from other provinces can relocate to Ontario to take up positions.

31 The categories are management occupations, occupations usually requiring university education, those usually requiring college education or apprenticeship training, those usually requiring high school and those only requiring on-the-job training.

3.5.2 Observations

This limitation notwithstanding, it is still important to investigate the extent to which Ontario's PSE program offerings are aligned with the province's labour market needs. Two topics deserve particular attention. The first is to understand more about how students choose among sectors, institutions and programs, and specifically the extent to which anticipated labour market outcomes affect these decisions. There is a limited literature on how Ontario students choose among universities,³² which possibly could be extended to examine choice of college versus university, and of program.

The other topic is an examination of the processes whereby colleges and universities set enrolment levels by program, and in particular how they adjust these over time in response to student demand and other factors.

³² See Drewes and Michael (2006) for an analysis of how students choose universities.



four

Chapter 4: System Design

Chapters 1–3 outlined expectations of Ontario's PSE system in the coming 10–15 years and the challenges these expectations create. In brief, these are:

- To provide enough spaces to ensure that Ontario's overall human capital needs are met
- In particular, to provide spaces for an estimated 42,000 to 60,000 new students in the GTA in the next decade
- To ensure that specific targets are met with respect to graduate education and annual apprenticeship registrations
- To attract proportionately more students from traditionally under-represented groups and meet their unique needs with respect to academic learning and student services
- To identify and then implement ways to enhance learning quality in colleges and universities
- To reduce the incidence of involuntary stop-outs and drop-outs from college, university and apprenticeship programs
- To enhance the ability of the system to respond to changes in labour market conditions
- To work within available capital and operating budgets

The obvious question is whether the PSE system is able to meet these expectations. To begin to answer this question, we need to shift our attention to the supply side. Specifically, we need to determine what supply-side changes are needed in the next 10–15 years if Ontario's colleges and universities are to accommodate many more students, appeal more to persons from traditionally under-represented groups, and provide top-quality training and education.

A common response to this question is that funding should be increased. Certainly, funding is an important part of the solution and funding issues will be paramount in future policy discussions. *Reaching Higher* ends in 2009–10 and a new funding commitment must be introduced. HEQCO intends to contribute to these discussions by making funding issues a key part of our research focus in the next two years.

In addition to funding issues, there is considerable interest currently in how the PSE system, as a system, might be re-designed to help meet the challenges noted above. The implicit assumption behind this thinking is that there are some significant gaps in the current system because of how it was designed and how it has evolved, and that filling in these gaps is a necessary part of achieving broader PSE objectives.

We examine two aspects of system design in this chapter: inter-institutional collaboration and increased mission differentiation within the college and university sectors.

4.1 Background

It is useful to begin the discussion with a brief background on the evolution of Ontario's PSE system in the post-war period.³³ The challenges the higher education sector faced in those years, and the ways in which governments and institutions together responded to them, explain many of the system design issues under discussion currently.

Demand for PSE places increased significantly after WWII as a consequence of a growing population and rising participation rates. The latter phenomenon was particularly striking. In common with other jurisdictions, postsecondary education in Ontario evolved rapidly from an

elite system to a mass system to a near-universal system. Less than 5% of the population aged 18–24 was enrolled in postsecondary education in the 1950s. This rate rose slowly for a decade and then rapidly thereafter, reaching 25% by 1980 and approaching 45% by 2005–06.

The increase in demand for PSE places was met by expanding enrolments in established universities and by creating new institutions. There were 14 universities in the early 1960s; today there are 20, including the Ontario College of Art and Design (OCAD) and the province's newest institution, Algoma University. Total university enrolment grew from 80,000 full time equivalent students in 1967–68 to 355,000 in 2006–07.

With a few exceptions, there is no formally mandated differentiation of missions among Ontario's universities, and

little variation in practice. All put equal weight on how full time faculty members are expected to allocate their time among teaching, research and service. All are authorized to offer graduate programs and all but two offer doctoral programs. Differences, such as they are, lie in program mix and relative success in research activity as gauged by conventional measures such as

33. Except where noted, this section draws on Clark, Moran, Skolnik & Trick (forthcoming).

grants, publications and citations. Fiscal incentives in the last decade from both federal and provincial governments tilted the university focus in strategic planning statements even more firmly towards emphasizing research and graduate studies.

Alongside the enrolment challenge in the post-war period was a perceived need to accommodate emerging labour market demands for skilled workers. The response was the creation of Colleges of Applied Arts and Technology. Legislation was introduced in May 1965 and the first colleges opened in 1966. There were 20 CAATs by 1970; today, there are 24. Total college enrolment grew steadily to reach nearly 200,000 by 2006–07.

The intent from the outset was for the college system to increase the province's capacity to provide technical training, while also offering general education to support life-long learning. Colleges were to draw their enrolment from high school graduates who did not go to university and from older workers requiring or wishing mid-career training. Diplomas and certificates were intended to be terminal credentials, providing direct access to employment. Applied research was a part of their mandate and colleges have put increasing emphasis on this activity over time.

There was no attempt to create differentiation in missions and activities among colleges. Such differences as developed were due mainly to unique relationships with local communities.

Ontario also hosts a large number of private career colleges. To operate in Ontario, private career colleges must be registered and have their programs approved by MTCU under the *Private Career Colleges Act, 2005*. This Act ensures that the colleges meet certain standards for the programs they offer, as well as for their advertising, refund policies and instructor qualifications. We will not consider these institutions further in this discussion.

This binary model for Ontario PSE began to alter in a number of ways in the 1990s in response to enrolment and funding pressures, among other forces. The changes took three forms: evolution in the missions of colleges and universities³⁴; new PSE providers; and increased collaboration between colleges and universities.

Perhaps the most notable evolution in mission was the request by colleges for authority to grant degrees. The government responded with the *Postsecondary Education Choice and Excellence Act, 2000* (PECEA). Colleges were authorized to offer degrees in applied areas³⁵ and in programs that did not duplicate those offered by an Ontario university. All proposals had to be approved by the newly-established Postsecondary Education Quality Assessment Board (PEQAB)³⁶.

Ontario colleges received a new orientation with the passage of the *Ontario Colleges of Applied Arts and Technology Act, 2002*. The Act increased the autonomy of the colleges and relieved them of geographically-defined catchment areas. The CAATs were no longer viewed only as community-based institutions, but rather were to have a provincial, national and international role. They were allowed and indeed encouraged to compete with each other for students and resources.

34. Sometimes referred to as "mission creep".

35. It is common to hear that colleges offer applied degrees. The correct description is degrees in applied areas.

36. For a current list of approvals, see: www.peqab.edu.gov.on.ca.

The 2002 Act added to the evolution in the mission of the college sector by establishing a new class of institutions, Institutes of Technology and Advanced Learning (ITALs). ITALs were created out of existing colleges. The principal difference is in the proportion of their activity that can be in degree programs: 15% for ITALs versus 5% for others. These institutions have received the majority of the Ministerial consents for baccalaureate programs.

The college-university boundary became further blurred as universities increased the vocational orientation of their programs. For revenue generation motives, among others, universities also focused more on diploma and certificate programs, particularly in professional areas such as health, technology and business.

A second addition to the Ontario PSE landscape was the appearance of out-of-province and private institutions, first authorized in 2000 by the PECEA. They were allowed to offer degrees, once approved by the PEQAB. Currently there are four foreign institutions offering degree programs in the province, mainly in teacher education. There is also one out-of-province public institution, offering a Bachelor of Nursing credential.

The third development was increased collaboration between CAATs and universities. There was considerable student interest in joint college-university programs, and in being able to transfer credits among institutions and between sectors. The Ontario government responded and produced a guide to transfer agreements between colleges and universities in 1994, followed in 1996 by the creation of the College University Consortium Council (CUCC). CUCC's mandate is to facilitate joint programs between colleges and universities and the transfer of students between sectors. Collaborative agreements have in fact developed as intended, although the prevailing government view is that these are too few in number and too limited in scope.

4.2 Inter-institutional Collaboration

The common view of a college or university education is that it is a straightforward, linear process. The student chooses either the college or the university sector, registers in a specific program, completes the program, obtains the relevant credential and enters the labour force.

The PSE process is not always simple or linear, however, and in some instances policy challenges arise. Many students opt to pursue a further PSE credential after graduation. If the program they choose is in the same sector, credential recognition is typically not an issue. This is not necessarily the case if students wish to switch sectors, however, particularly from college to university.

A different type of challenge arises if students choose to switch institutions before graduation. Understandably, they wish to avoid duplication in course work wherever possible. Credit transfer can be problematic for students moving within a sector, and it takes on added complexity for students seeking to switch sectors.

These challenges are particularly acute for Ontario given its unique PSE history. As noted, colleges and universities were originally designed to be separate sectors, with little or no inter-sector mobility envisioned. Not surprisingly, students frequently experience difficulties in getting credentials recognized or in obtaining credit for courses completed elsewhere. This record stands in sharp contrast to those in some other provinces, such as Alberta and British Columbia, where systems were designed explicitly to support inter-institutional mobility.

We noted in *R&R 2007* that HEQCO was mandated in its founding Act to consider methods of fostering cooperation between and among various PSE institutions, especially in the mutual recognition of courses and programs of study. We acknowledge the importance of this topic, but choose to cast it differently. Specifically, we view inter-institutional cooperation not as an end in itself, but rather as a means to achieve the ultimate PSE goals with respect to participation, educational quality and accountability.

4.2.1 Current Collaborative Arrangements

Ontario governments have long encouraged college-university collaboration, but have left the responsibility for developing it to the institutions. Colleges and universities have responded with a variety of arrangements. The Ontario College University Transfer Guide (OCUTG) website, hosted by CUCC, lists 303 such agreements in place as of early October 2008. Registration with CUCC is voluntary, so the actual number of collaborative arrangements may be larger. Individual institutions provide their own lists of agreements as well.

Table 4.1 provides an overview of these arrangements. The first panel in the table breaks down the agreements by the way they are organized. The great majority – over 70% – involve one originating institution and one receiving institution. Multilateral agreements typically involve one receiving institution and two or more originating institutions. There are relatively few of these, reflecting the greater challenge in negotiating such arrangements. The third category, direct entry programs, constitutes over 20% of the total. A direct entry program is defined as "a credit transfer opportunity to a specific degree program which has been formally approved by the receiving institution but is not a formal collaborative agreement between institutions" (OCUTG glossary).

The second panel of Table 4.1 disaggregates the agreements by type. It is useful to think of these arrangements as lying along a continuum. At one end, representing the greatest degree of collaboration, are joint or integrated programs. OCUTG defines a joint or integrated program as "one that integrates two or more distinct, approved 'free-standing' programs in two or more institutions into one program for enrolment, curricula, examination, and administrative purposes, and reports the eligible enrolment on the basis of the institution-of-registration." Only 12 of the 303 registered agreements fall into this category, reflecting the complexity involved in negotiating and administering such an arrangement.

Next along the continuum are concurrent programs. OCUTG defines these as "related programs offered by partnering institutions in both sectors, one leading to a diploma, the other to a degree, which allow for learners to pursue both credentials simultaneously." There are 35 such agreements registered.

Next along the continuum are two types of credential recognition arrangements. Consecutive programs are offered by colleges to university graduates who are entering a designated college program that is related to the degree program. There are 15 instances listed in Table 4.1. Accelerated programs are offered by colleges to graduates of both college and university programs. These students are fast-tracked so that they can complete the learning requirements more quickly. There are six such arrangements currently.

Degree completion arrangements are offered by universities to college graduates. OCUTG defines these as instances "whereby graduates of a diploma program receive specified trans-

fer credit for a completed diploma program toward a degree and then complete a specified number of additional credits at the university in order to qualify for the baccalaureate degree." This category contains nearly four-fifths of the collaborative arrangements.

The last stop along the continuum is credit transfer or advanced standing. OCUTG defines credit transfer as "acceptance or recognition of credits by a receiving institution for one or several courses or for a whole program taken at another institution that is either within or external to the sector." Advanced standing refers to "academic credit awarded to a learner upon admission to a program of study which enables direct entry to a second or higher academic achievement level of the program." There are no recorded instances of such arrangements in Table 4.1.

The third and fourth panels of Table 4.1 show the distribution of the agreements among broad discipline areas. Two-thirds of the instances where colleges are the receiving institution are in applied arts. The same general category is the most significant one when universities are the receiving institution, followed by social sciences and then business and applied sciences.

Table 4.1

Transfer Guide Agreement Overview

Total Agreements	303
Total Agreements By Category	
Bilateral Agreements:	216
Multilateral Agreements:	20
Direct Entry Programs:	67
Total Agreements By Type	
Concurrent:	35
Consecutive:	15
Degree-Completion:	235
Accelerated/Intensive:	6
Joint/Integrated:	12
Credit Transfer/Advanced Standing:	0
Total Agreements By College Division (where college is receiving institution)	
Applied Arts:	8
Business:	1
Health:	2
Technology:	1
Total Agreements By University Discipline (where university is receiving institution)	
Applied Arts/Liberal Arts/Humanities:	101
Business/Commerce:	44
Engineering/Technology:	19
Health Sciences/Allied Health:	14
Sciences/Applied Sciences/Liberal Sciences:	48
Social Sciences/Services:	65

Source: Drawn from OCUTG website in October 2008

There is a definite asymmetry in the direction of intended student flow. Of the 303 agreements in the table, only 12 have a college as the receiving institution and there are only four such institutions. Universities are the receiving institutions for the remaining 291 agreements. Seventeen universities are represented in the list of receiving institutions. Two of these – Laurentian University and the University of Windsor – have 39 agreements in place, followed closely by Brock University at 33 and Algoma University at 31.

Boggs and Trick (forthcoming) address the question of what determines a successful collaboration. Their conceptual framework draws on the organizational behavior literature. The empirical evidence comes from in-depth case studies of seven Ontario collaborations.³⁷ In addition, they look at experiences in five jurisdictions with a history of sector-wide institutional collaboration or articulation: Florida, California, British Columbia, Alberta and Scotland. They pose five research questions:

- What is the purpose of the collaborative arrangements now in place?
- Why did the partners opt to collaborate rather than proceed independently?
- Are the arrangements achieving their intended purposes?
- Can the Ontario arrangements be expanded or replicated?
- What can we learn from experiences in other jurisdictions?

The authors identify a number of factors that appear to underlie successful collaborative efforts such as commitment by senior officials and availability of capital funding. Their overall conclusion, however, is that inter-institutional collaboration is unlikely to be a significant factor in advancing Ontario's PSE goals in the current policy environment. They recognize that many worthwhile joint ventures are in place, despite facing a set of incentives that make partnerships difficult to initiate and administer. They acknowledge that the number of joint ventures could be expanded, but suggest that they will never add up to a system, since the creation of such a system would require a new process for planning and governing relationships between institutions.

4.2.2 Pathways

Ideally, we would be able to provide a complete picture of student mobility within Ontario's PSE system. Unfortunately, for reasons noted throughout this report, we have only limited information on how students move among institutions and between sectors.³⁸

The most complete information we have is on the further educational choices of college and university graduates. Data in both cases come from surveys conducted to meet Key Performance Indicator (KPI) reporting requirements.³⁹ College graduates are surveyed by telephone six months after completing their programs. University graduates are surveyed two years after completing their programs, and asked about their situations six months and two years after graduation.

Of the college students who responded in 2006–07, nearly 27% indicated they were pursuing further higher education. Figure 4.1 shows the distribution of these respondents by PSE

37 McMaster-Mohawk, Seneca-York, Ryerson and various partners, Lakehead and various partners, UOIT-Durham, Guelph-Humber and the Georgian College-University Partnership Centre.

38 This is in contrast to the situation in British Columbia where there is extensive and detailed data on student mobility. See [www.bccat.bcc.ca/](http://bccat.bcc.ca/) and reports listed therein.

39 KPIs are discussed in more detail in Chapter 5.

credential sought. Sixty-one percent were registered in another college diploma or certificate program. The vast majority of these students returned to their own colleges. Seven percent were enroled in a college-university collaborative program and 3% were enroled in a college degree program.

Registrations by college graduates for a second college credential are concentrated in a few programs. The top five originating programs in terms of the number of students are: preparatory health sciences; general arts and science (one year); art fundamentals; general arts and science (two years); and early childhood education. The top five destination programs are: nursing-related; media; health technology; engineering-electronics; and accounting/finance.

Nearly one-quarter of college graduates in 2006–07 registered in a university degree program, the majority at an Ontario institution, and another 4% in a university diploma or certificate program. The bulk of students transferring to university programs went to one of two institutions, York University or Ryerson University. The top five originating programs for college graduates transferring to a university are: business (all areas combined); early childhood education; police foundations; general arts and science (two-year); and general arts and science (one-year). The top five destination university programs are: business; psychology; nursing; sociology; and criminology.

The graduate satisfaction survey provides some insight into the academic and socioeconomic profiles of these students. For example, the probability of transferring to university after graduating from college is higher for individuals who: are female; are in a younger age group; graduated from a large college; graduated from a college located in a metro area; and received a three-year advanced diploma. There is almost certainly considerable overlap among these factors and further research is required to fully understand these and other transfer decisions.

A survey of individuals who graduated from university in 2001–02 (2005 Ontario University Graduate Survey) revealed that 34% of them were enroled in another postsecondary program six months after graduation and 31% of them were enroled in another program two years after graduation. The vast majority of this group returned to university for a second credential. Six months after graduation, 31% of those continuing in PSE were in a university graduate program, 31% were in a university professional program and 12% were in another university undergraduate program. The picture two years after graduation is slightly changed. Thirty-eight percent of students continuing in PSE were in a university graduate program, 25% were in a university professional program and 9% were in another university undergraduate program.

There was some movement from university to college. Twelve percent of university graduates were in a college program six months after graduation and 11% were in a college program two years after graduation.⁴⁰ Nearly two-thirds of those continuing on to a college are graduates of social science and humanities programs.

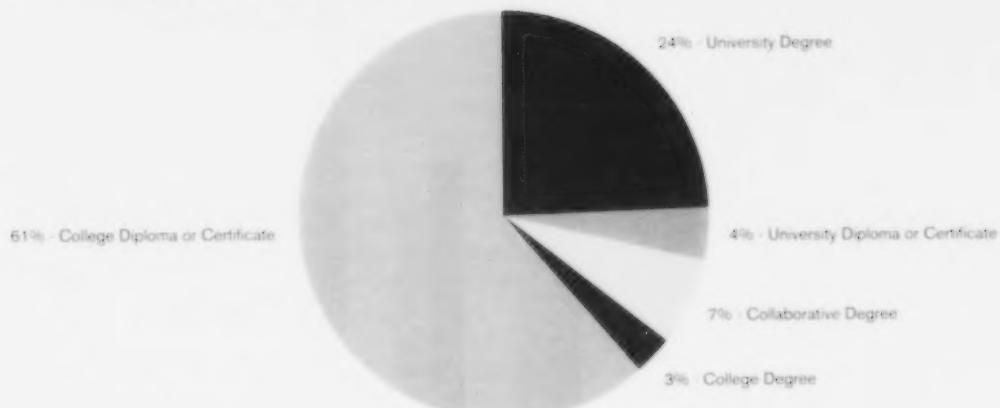
Looking at the previous education of students enroled in college and university programs provides a different perspective on PSE pathways. Figure 4.2 shows the previous postsecondary credentials of Ontario college students for the period 1999–2000 to 2007–08. For the latest year, nearly one-fifth of respondents already possessed at least one PSE credential.⁴¹ Slightly more than half of these had a college diploma while 45% entered with a university degree. In

40. The remainder are classed as "other" programs.

41. A recent Colleges Ontario report ("Improving College System Pathways: Project Highlights Report", 2008b) indicates that in 2007–08 approximately 37% of college students reported having some previous postsecondary experience.

Figure 4.1

Further Education Pathways of 2006–07 College Graduates, by Credential



Source: Based on MTCU Graduate Satisfaction Survey

both cases, the numbers are up over previous years. Compared to college students without previous university credentials, college students with previous university credentials are more likely to be female, older and have a first language other than French or English.

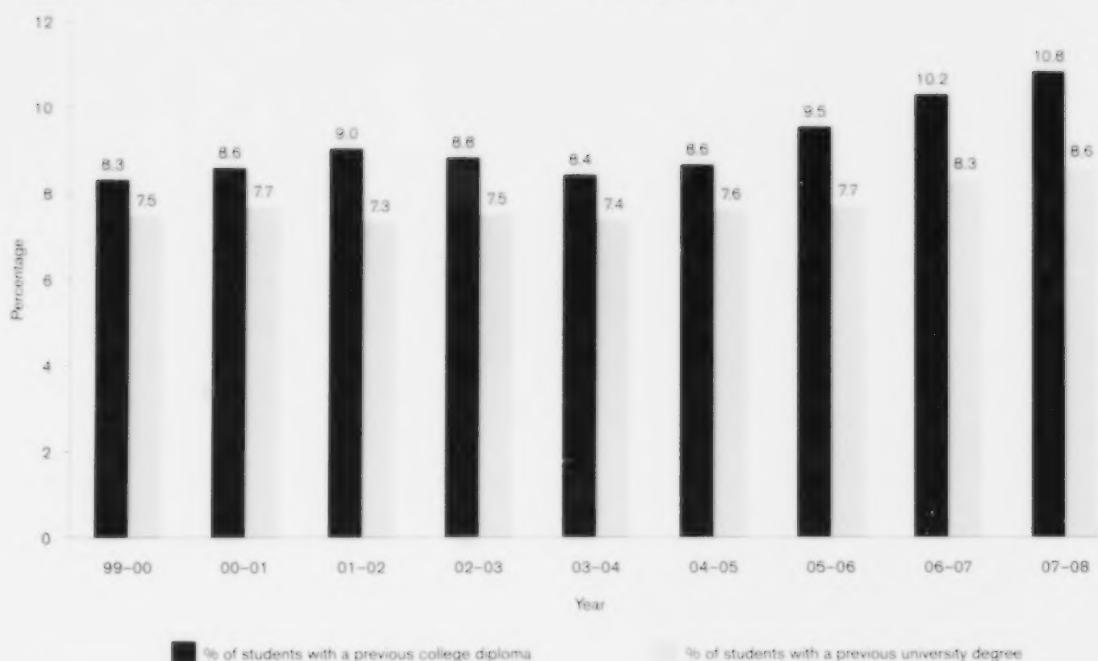
The NSSE survey offers a glimpse into the educational background of Ontario university students. Of the first year university students surveyed by NSSE in 2006, 69% indicated they had not attended any type of school other than the one they were currently attending. Six percent reported attending a university other than the current one; 6% reported attending a community college with vocational or technical courses not at a university level; 4% reported attending a community college with university transfer courses; 3% reported attending a private training institution; 2% reported attending a CEGEP; and 4% were classed as "other".⁴²

We know considerably less about intra-sector mobility. A recent report by Colleges Ontario (2008) gives highlights of a study on student mobility within the college system. A survey of transfer applicants revealed that 2–4% of all first year college students have transferred mid-program to another college, either to similar or dissimilar programs. The study concludes that students are generally satisfied with the transfer process. Seventy-three percent of those who asked for transfer credit received it and only 27% received less credit than they expected. The report makes a number of recommendations aimed at facilitating college to college transfers.

42 For more information see http://www.mcmaster.ca/avppa/nsse/McMaster_NSSE2006_Frequency_Distributions.pdf

Figure 4.2

Previous Postsecondary Credentials of Ontario College Students, 1999–00 to 2007–08



Source: MTCU Student Satisfaction Surveys

4.2.3 Observations

HEQCO will continue to make inter-institutional collaboration a key part of its research efforts. There are at least three tasks to complete before we can confidently advance policy recommendations in this area. The first is to obtain a more complete inventory of collaborative efforts. We acknowledge and appreciate CUCC's efforts to produce this inventory and we look forward to working with them as appropriate.

The second task is to produce a fuller empirical record of the various PSE pathways. This challenge cannot be met with existing data sources, however. The situation could be resolved if Statistics Canada were to complete work on the Postsecondary Student Information System (PSIS) data project and if it were to include a unique student identifier. But this project has been underway for some time now and shows no signs of providing the requisite data anytime soon.

The alternative is to generate a made-in-Ontario data set. The existence of the central application centres – Ontario Universities' Application Centre (OUAC) and Ontario College Application Service (OCAS) – makes this option quite appealing. Applicants can be contacted when they apply for admission to college or university and asked to provide relevant demographic and other information. The questions would be framed to capture variables known to affect PSE choices as well as those reflecting MTCU's policy priorities (e.g. parental education). Ideally,

students could be surveyed periodically as they progress through the system, with note taken of switches in programs, institutions or sectors. With institutional cooperation, these records could be matched with measures of academic performance. HEQCO is currently investigating the feasibility of introducing a survey of this sort.

The task of developing an appropriate data set would be greatly assisted by the wide-spread dissemination of the Ontario Education Number (OEN). The OEN was initiated by the Ministry of Education as a unique identifier for Ontario students. Currently, school boards have exclusive responsibility for assigning the number to students attending Ontario elementary and secondary schools. Recently, the college and university application centres (OUAC and OCAS) began collecting the OEN when a student applies for a postsecondary education institution in Ontario. Universities and colleges are permitted, but not required, to collect the OEN as well. Most of them currently do not use the number, dropping it from a student's record when they register at an institution.

One problem with using the OEN currently is that there is no way of giving postsecondary students from out of province or out of the country a number. A few other Canadian jurisdictions including British Columbia, Alberta and Manitoba either have implemented, or are in the process of implementing, student identification numbers. British Columbia in particular uses the number successfully at both the elementary/secondary and postsecondary levels, allowing policy makers to follow students with certain characteristics (e.g. Aboriginal, low income) or who use certain programs (e.g. student aid, institutional collaborative programs) through the school system from kindergarten to graduation from postsecondary education.

The third task is to gain a fuller understanding of the benefits versus the costs of relying on inter-institutional collaboration to achieve the province's PSE goals. For example, it is possible that collaborative efforts enhance PSE participation, particularly by students from traditionally under-represented groups. They can provide students with geographically accessible study options in areas that would otherwise be under-served by PSE institutions. Additionally, they can facilitate access by providing students who might not otherwise be qualified for university to register first in a college



program designed specifically to foster the academic competencies necessary to pursue a university education.

Similarly, collaborative programs may enhance educational quality. This potential is particularly relevant in instances where learning outcomes require, or at least are enhanced by, combining theoretical and applied knowledge. Universities and colleges can contribute according to their comparative advantages and students receive programs that neither type of institution could, or at least would be likely to, offer alone. Technology and health science programs come to mind immediately, but doubtless there are many other examples.

Collaborative efforts are not without cost, however. The most obvious ones are the transactions costs of identifying, negotiating and then administering the arrangements on an ongoing basis. These costs are not insignificant even in provinces such as British Columbia where the PSE system is designed to facilitate inter-institutional mobility. A complete evaluation of collaborative arrangements would compare the educational and other benefits of such arrangements to the costs of implementing and operating them on an ongoing basis.

4.3 Mission Differentiation⁴³

We saw above that there was no attempt when colleges were established in the 1960s to introduce variation in institutional missions, with the exception of those meant to serve the francophone population. Such differences as did develop are largely explained by unique local environments and circumstances. The establishment of ITALs introduced some differentiation within the college system, although, as already noted, the distinction between them and non-ITALs is limited to the greater weight that the former can give to degree programs.

Ontario's universities were generally allowed to develop their own missions. There were some attempts to create unique profiles but such differences in declared missions as did exist appear to have narrowed over time. The infusion of federal and provincial research funding in the last decade has reinforced this tendency. It remains to be seen how the province's newest university – Algoma – will develop.

Restrictions on the abilities of colleges to offer baccalaureate programs, and an apparent convergence of mission statements of Ontario's universities, has led some observers to conclude that there are significant gaps in Ontario's PSE system – gaps that can only be filled by creating new types of PSE institutions.

4.3.1 Polytechnics

The most visible initiative at the moment is a proposal to create a limited number of polytechnics. The impetus for this change in Ontario originates with a few of the colleges,⁴⁴ although the idea has attracted support within the province and in other regions.

⁴³ Drawn from Doern (2008), Jones & Skolnick (2008) and Clark et al (forthcoming).

⁴⁴ Five Ontario colleges are currently members of Polytechnics Canada: Seneca, Sheridan, Humber, Conestoga and George Brown.

The definition of a polytechnic is unclear. Polytechnics Canada identifies four key characteristics of polytechnic education:⁴⁵

- Providing career-focused and community responsive education developed in partnership with employers
- Committing to a wide range of credentials
- Combining theoretical and applied learning, relevant work experience and the opportunity to participate in applied research
- Offering pathways that allow students to build on credentials and prior learning

The range of PSE credentials offered generally includes:

- Four-year bachelor degree programs with a focus on (or in) applied studies
- Joint Bachelor degrees with universities
- Diplomas at the technologist and technician levels
- Apprenticeship programs
- Post-graduate certificates
- Continuing education programs
- Postsecondary certificate courses
- Specialized corporate and government training
- Online learning and distance education

Finally, Polytechnics Canada points to a focus on applied research and track records in fostering partnerships with industry.

Jones and Skolnik (forthcoming) describe their interpretation of the characteristics of a polytechnic education in the following manner:

- Employment or career focused
- Blend of theoretical and applied learning
- Fairly high level of study (i.e. baccalaureate)

They note in addition that the term generally implies a relative concentration on programs related to technology or of a technical nature as opposed to programs in general arts and sciences.

Polytechnics are a part of PSE systems in other countries. Most European polytechnics emerged in the latter half of the twentieth century as part of the transition from elite to mass education. Many were created by integrating and merging existing specialized vocational colleges. Most offer degree-level programming in applied, vocational or professional areas of study and have a research function. A number of institutions in the US identify themselves as polytechnics. The majority refer in their mission statements to: career-focused education, applied learning and technology-based fields.

Outside Ontario, interest in polytechnics in Canada is mainly in Alberta and British Columbia. A recent proposal to create polytechnics in New Brunswick met with considerable resistance and appears to have been abandoned.

45 For more information see www.polytechnicscanada.ca/about/.

In our view, the decision to create a new tier of PSE institutions in Ontario must rest on how this initiative would address the challenges noted in the introduction to this chapter. Would there be more overall PSE capacity, particularly in the GTA? Would students from traditionally under-represented groups find it easier to gain acceptance and to complete their programs? Would the quality of teaching and learning be enhanced? Would the education and skills of graduates be better aligned with labour market needs? Would transfer pathways be expanded?

Even if the answer to each question is positive, there is a further step. The benefits of addressing these challenges in this manner must be set against the costs, both financial and non-financial. Beyond a name change, what is involved in establishing a third tier? In particular, will additional resources be required? How would the remaining CAATs be affected?

There is also considerable ambiguity around how a decision to proceed would be implemented. How many polytechnics would be approved? What are the criteria for approval? Would only CAATs be eligible or could entirely new institutions emerge?

Finally, there is the question of whether polytechnic status is but a step along the way to becoming a university. International experience on this issue is mixed. The UK created polytechnics in the 1960s and then converted them all to universities in the 1990s. In other countries, however, they have proven to be a more stable institutional form. If university status is the ultimate goal, and if there truly is a need for additional university capacity in Ontario, is this transitional arrangement the best way to proceed?

We have seen no analysis to date on how the creation of polytechnics will address the challenges and we are not aware of any attempts to assess rigorously the benefits vs. the costs. If such studies exist, we have not had access to them; nor, in our informal conversations with academic and government leaders, have we heard an evidence-based case for the creation of polytechnics.

HEQCO can contribute to the debate by undertaking further research along the lines suggested above but full resolution will require more extensive discussion among government, academic leaders and the public in general.

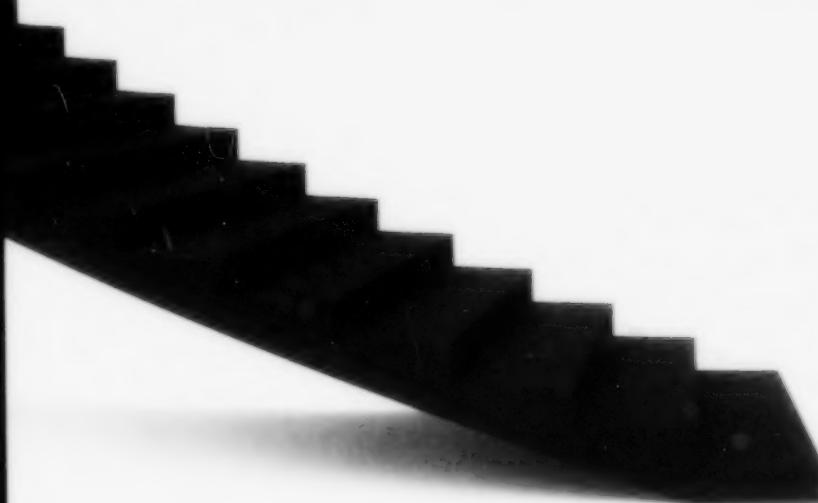
4.3.2 The University Sector

Jones and Skolnik (forthcoming) identify two other gaps in Ontario's PSE system: the absence of a university focusing primarily on undergraduate education and the absence of an open university.⁴⁶

These are intriguing suggestions and it is clear that filling these gaps could potentially address some of the challenges noted in the introduction to this chapter. The proposals add additional university capacity to the system and could ease the GTA enrolment pressures if implemented quickly. An open university could make PSE programs available to those geographically remote from a college or university and to those who seek a more self-directed style of learning. A university devoted to undergraduate excellence would enhance learning quality for those attending and could serve as a model of educational innovation for remaining institutions.

⁴⁶ They identify the relative lack of integration of colleges and universities as a further gap.

As with polytechnics, however, we do not feel the case has yet been made for either option. We will include consideration of these options in our ongoing system design research.



five

Chapter 5: Accountability

There is general acknowledgement that Ontario's PSE sector must be accountable (Rae, 2005; Government of Ontario, 2005). Accountability is a very broad term, however, so it is useful to consider it as encompassing at least three specific interpretations, differentiated according to the intended audience. The first accountability relationship is that between institutions and their internal stakeholders. The second is that between the PSE sector as a whole and the general public, particularly potential students. The third is the relationship of colleges and universities with the Ontario government as represented by MTCU.

5.1 Internal Accountability

The first expectation is that colleges and universities are accountable to their own stakeholders. Meeting this requirement generally means that an institution has a clear mission and set of goals, carries out its academic and other planning activities in accordance with these goals, reports regularly on results and adjusts goals and initiatives as necessary and appropriate.

HEQCO hosted a workshop in November 2007 on the use of Performance Indicators (PIs) in university planning. One objective of the workshop was to compile an inventory of all PIs that universities currently produce and make public, and to address issues around data availability and reliability. The information was aggregated into an inventory carrying the formal title of *Ontario Universities Performance Indicators Matrix*, but which quickly became known as the "giant matrix". It contains an overall summary, followed by a summary by major theme and a detailed reporting of PIs by theme and by institution. The full report from this workshop, entitled "Performance Indicators Workshop for Universities Report," is available on HEQCO's website.

The immediate observation is that Ontario universities compile and publish a huge amount of information. Table 5.1 provides a summary. All told, there are 882 pieces of data in the inventory, or an average of 49 PIs per institution. There is considerable variation among universities in reliance on PIs. The fewest number of indicators reported by any institution is nine, while the largest number is 96.

Table 5.1

Summary of the Giant Matrix

Theme	Number of PIs	Percent of Total	Institutions Reporting	Average PIs per Reporting Institution (rounded)	Fewest PIs Reported	Most PIs Reported
Total	882	100.0	18	49	9	96
Accessibility	205	23.2	19	11	3	20
Quality	504	57.1	17	30	10	65
Accountability	153	17.3	16	10	3	21
Inter-institutional Relations	20	2.3	9	2	1	4

Source: HEQCO website posting for PI conference

There is considerable variation in reporting by major theme. Just under one-quarter of the entries, 205 in total, relate to accessibility. All universities report PIs in this category, with the range running from three to 20.

Quality is the largest category, accounting for 504 of the 882 entries, or 57%. All but one of the institutions report quality indicators, with the range of those reporting running from 10 to 65.

Accountability is the third largest category, consisting of 153 indicators or over 17% of the total. All but two institutions are represented in the matrix, with the range running from three to 21 data points. One of the universities not represented in the matrix directs readers instead to its website.

The category of inter-institutional relations is the smallest by far, with only 20 indicators, or just 2.3% of the total. Only nine universities report in this category, with the range running from one to four.

A second objective of the workshop was to employ case studies to examine how universities use PIs for academic planning purposes. Two examples will suffice to give an indication of the extent to which some institutions have pursued internal accountability.

The University of Ottawa employs an explicit balanced scorecard approach, drawing on the framework developed by Kaplan and Norton (1996). The starting point for their scorecard, as with all such ventures, is the unit's mission statement. The University distinguishes two broad types of indicators: general (e.g. learning quality) and mission specific (e.g. linguistic balance). For each indicator, there is a base value, a current value and a target value. This allows the actual value to be compared both to the base value – Are we making progress from where

we started? – and to the target value – How close are we to where we want to be? A traffic light approach is used as a visual aid: green means satisfactory, yellow means caution and red means alert. The scorecard is updated annually in the early fall and serves as a context for budget requests and decisions.

Ryerson University groups its indicators into three types and distinguishes between formative and summative measures. The first type, performance indicators, is intended to enable the Board to monitor its areas of oversight and governance. There are four categories within this group: strategic direction indicators, such as retention and graduation rates; management indicators, such as student-to-faculty ratios; financial indicators, such as deficit/surplus; and university profile indicators, such as percent of alumni making donations.

The second type, progress indicators, informs academic planning and decision-making at the departmental, faculty and institutional levels. These measures are made interactive so that administrators can trace the performance of their units over time and in a comparative context.

The final category, decision-support indicators, is developed to support evaluation of academic change. The indicators are generally grouped into three sub-categories: quality, responsiveness and efficiency, effectiveness and affordability.

The scorecard aspect enters when considering core performance measures. The current values of key variables are compared to target levels, with a graphical key as to where improvement is required and where maintenance is required. Ryerson University makes interesting use of its NSSE data. Core NSSE questions are identified, the criterion being alignment with the institution's mission statement, and performance is evaluated against key comparison groups. Again, a graphical technique is used to identify where scores meet or exceed expectations and where they fall short.

HEQCO hosted a workshop with colleges on learning research. One of the key questions discussed was how evidence on learning research is used by colleges. Representatives indicated that they used these findings in a number of ways. The most frequently-cited application was in strategic planning to evaluate the allocation and effectiveness of program resources. Other examples cited include: assisting in faculty and staff training; guiding marketing efforts; developing and implementing learning initiatives; supporting multi-year accountability reports; and assisting in quality assurance. The full report from this workshop, entitled "HEQCO / College Dialogue on Learning Research: Present and Future" is available on HEQCO's website.

Ontario colleges and universities clearly devote considerable time and resources to internal accountability. There is, however, wide variation in how the challenge is addressed, both in the number of performance indicators and the sophistication with which they are employed. The workshops provided opportunities to share experiences and to identify promising practices.

The attention that institutions pay to internal accountability can be used to good advantage in developing a revised multi-year accountability framework. We return to this point below.

5.2 Public Accountability

The second expectation is that colleges and universities provide information about their activities in an open and transparent fashion. The general public has an legitimate interest in under-

standing how well the sector is meeting expectations when they are asked to rank PSE among the province's social priorities at election time. The information need is most evident, however, for potential students and their families who wish to make informed choices among institutions and programs.

We noted in Chapter 1 that the need to gather and interpret detailed and complex data about PSE choices may pose a barrier to PSE participation, particularly for students from traditionally under-represented groups. We also noted in Chapter 3 that more complete and accessible information may increase graduation rates by facilitating a better match of students with institutions and programs. It may also lead to a better match between program choice and labour market outcomes.

The MTCU website is an obvious starting point for students. The Ontario Student Assistance Program (OSAP) site has extensive information for students seeking financial support. The Ontario College Application Service and the Ontario Universities' Applications Centre also provide considerable guidance.

The public appetite for comparative information on the PSE sector is sufficiently large to support a number of private information providers. Maclean's is the best known example. It publishes two annual university editions: a survey issue and the more controversial university rankings guide. The guide attempts to provide a ranking of universities according to a weighted set of performance indicators. The annual publications have been hugely popular and much publicized from the outset, although it is not clear how much effect they have had on student choices (Kong and Veall, 2005).

In 2006, a number of universities became concerned with the methodology of the Maclean's ranking and the information-gathering burden it imposed on them, and withdrew from voluntary participation. Maclean's continues to publish the rankings but now bases them entirely on publicly available data and allows students to determine their own weighting for each of the different indicators using the "Personalized University Ranking Tool."⁴⁷

The Globe and Mail produces annual information on Canadian universities as well. One source is the University Report Card student survey, administered by The Strategic Counsel in partnership with the Globe and Mail and the Educational Policy Institute. The second instrument is the University navigator, designed specifically to help students make decisions about where to attend university. According to the Globe and Mail webpage, "The Navigator lets you generate your own personal ranking by deciding how important you consider certain indicators to be to your studies."⁴⁸

The process of choosing among universities and university-level programs was assisted by the Common University Data Ontario project (CUDO) which was introduced in 2006 in response to the controversial Maclean's rankings. Institutions settled on a common template and agreed to assemble the information and make it public. The data presented include items such as enrolment, the number of degrees awarded, student satisfaction rates, undergraduate class size and the number of full time faculty. Each institution posts this information in a common format on its websites. CUDO was intended from the beginning to be a work-in-progress and is expected to evolve over time.

47 The Personalized University Ranking Tool is available at <http://oncampus.macleans.ca/education/2008/02/11/the-macleans-personalized-university-ranking-tool/>.

48 For more information see <http://www.universitynavigator.com/>.

One drawback of CUDO is that the information is only available from individual university websites. This feature makes comparisons among universities difficult as each data set must be separately downloaded and then the accumulated information manipulated to make the relevant comparisons. It would be a simple matter to make the site interactive and searchable by category.

CUDO inspired similar efforts in British Columbia, Alberta and Quebec, and efforts are underway to extend it to the national level.

Observations

The overall impression is that students have access to a considerable amount of information about the activities and operations of Ontario's PSE system. Colleges, universities and their associations pay particular attention to out-reach activities, although one possible concern is that this material is intentionally promotional.

We noted above that private sources have responded to this feature by providing comparative information, including producing league tables of quality rankings. These publications, particularly the rankings exercises, are generally dismissed by academic leaders, although they remain popular with the general public. The publishers have made some effort in the past few years to respond to criticisms of their methodology and data. The un-resolved, and probably un-resolvable, issue is whether colleges and universities are so diverse that quality comparisons can ever be meaningful.

CUDO is a welcome source of information for students who are considering applying to one or more Ontario universities. It is meant to be an ever-improving resource and HEQCO will watch its development with interest. At some point, it would be useful to analyze how effective CUDO is in informing students about PSE options, and in shaping their decisions. It is also worth asking whether a similar guide is warranted for Ontario colleges.

5.3 Accountability to Government

The third expectation is that colleges and universities are accountable to the government through MTCU.



There are three components to this relationship currently. The first is a basic reporting or audit requirement, intended to ensure that public monies are utilized as intended and regulations are followed. The second is the use of Key Performance Indicators (KPIs) to evaluate college and university performances and, on this basis, to direct modest amounts of funding. The third is the Multi-Year Accountability Agreements (MYAAs), aimed at aligning the actions and activities of colleges and universities with the province's overall sector goals. We look at the first two sets of indicators in this section, and turn to MYAAs in the following section.

5.3.1 Reporting Requirements

Colleges and universities receive considerable sums of public funding to carry out their academic and related activities. Some of this funding is general purpose, but a significant portion of it is tied to specific projects or purposes. In addition, as public institutions, colleges and universities are subject to a host of regulations relating to such things as workplace safety, research ethics, the Freedom of Information and Protection of Privacy Act (FIPPA) and so forth. It is reasonable to expect that public funds are used for their intended purposes and that institutions are compliant with the relevant regulations.

There are considerable reporting requirements in place currently to deal with basic audit expectations. A joint MTCU/COU task force was established in 2005 to look at reporting requirements for universities (COU, 2006). The task force discovered that, at a minimum, universities submit at least 40 reports and two external audits per year. In a few cases, there are more than 90 reports and four external audits per year. We are informed that colleges report on approximately 75 indicators annually.

The joint task force made a number of recommendations on how the burden of these requirements might be reduced while retaining the important accountability feature. To our knowledge, these recommendations have not been acted upon. We will not deal further with this accountability component here except to urge that every effort be made to streamline and consolidate reporting requirements. Proposals to add new responsibilities, as with re-designed MYAAs for example, will be better received if this streamlining were to occur.

5.3.2 Key Performance Indicators

The first significant step in developing an accountability framework in Ontario came in the late 1990s with the introduction of Key Performance Indicators (KPIs) for colleges and universities. KPIs remain a feature of the current PSE environment and at least some of the indicators are candidates for inclusion in any new accountability framework, so it is useful to consider them in some detail.

Current KPIs

There are five KPIs for colleges: graduation rates, employment rates, student satisfaction rates, graduate satisfaction rates and employer satisfaction rates. Data collection began in the fall of 1998, and KPIs began to be factored into determining government transfer payments to institutions in 2000–01. Only three of the KPIs enter funding calculations: employment rates, graduate satisfaction rates and employer satisfaction rates.

The KPI graduation rate is based on the proportion of students who complete one-year programs within two years, two-year programs within three years, three-year programs within five years and degree programs within seven years. The KPI employment rate is the percentage of graduates who are working full time or part time within six months of graduation. It excludes, appropriately, those in school full time and those not actively looking for work.

The KPIs also include three types of survey information. The student satisfaction survey asks students about the overall learning environment, the quality of the education they are receiving and if they feel it will be useful to their future careers. The graduate satisfaction survey is administered to students six months after completing their programs. Respondents are asked how satisfied they are with the usefulness of their college education in achieving their goals after graduation. The KPI is defined as the percentage of respondents indicating they are satisfied or very satisfied. In the employer satisfaction survey, employers are asked about their overall satisfaction with their employees' college preparations for the type of work they are doing. Again, the indicator is the percentage satisfied or very satisfied.

Funding is tied to performance as measured by these indicators. Payments to colleges are determined by a formula reflecting the size of the college and its KPI scores. The aggregate amount of performance funding for colleges has been fixed for the last five years at \$16.4 million, or about 2% of total operating grants.

There are three KPIs for universities: graduation rates, and employment rates six months and two years after graduation. The graduation rate is the percentage of first year students entering bachelor's or first degree professional programs who complete the requirements within seven years. The employment rate is the percentage of graduates of bachelor's or first degree professional programs who were employed six months and two years after graduation.

University operating grants are also tied to performance on these indicators. The aggregate amount of performance funding currently is \$23 million, less than 1% of operating grants.

In addition, both college and universities report OSAP default rates as part of the Ontario Student Assistance Program Performance Indicators requirement.

Issues with KPIs

There are a number of problems with the current set of KPIs as quality indicators and as guides to directing performance-based funding. It is important to understand these concerns in order to evaluate the usefulness of including them in MYAAAs.



Consider graduation rates first. These are useful performance indicators in principle as they reflect aspects of educational quality (see Chapter 3) and tell us something about the success of an institution in supporting students once accepted. But two issues need to be resolved if they are to be considered for inclusion in a new accountability framework.

The first issue concerns definitions and data. College graduation rates are collected by the institutions themselves, although not in a consistent manner. College graduation rates may be skewed because of the number of students who switch to other programs or move on to universities. Also, colleges tend to have many part time students who are more likely to take

breaks from their education and then return. Despite completing their education, such students are not included in graduation rates.



CSRDE methodology skews reported graduation rates. Some institutions have been 'fishing out' fourth year students, while others have left the data combined. Until this process is standardized, the data are difficult to interpret.

Finally, the CSRDE does not account for students stopping out. Students who do not register for a semester are no longer included in the data set. Thus, many schools that have large populations of students who stop and start their education have skewed retention data from CSRDE.

The second issue concerns how the data are to be interpreted. Specifically, graduation rates cannot be used in an unadjusted form, especially for ranking purposes. The main problem with using them in this manner is that, as we noted in Chapter 3, graduation rates vary systematically with socioeconomic characteristics of students, type of program and so forth. Institutions cannot control these variables, or at least we do not want them to try to do so. Using this indicator in its unadjusted form punishes institutions that take higher-risk students and may create an incentive to be more selective in student intake.

Some variation in graduation rates among institutions is therefore not only inevitable but also proper. The question, however, is how much variation is proper. It is equally wrong to go to the other extreme and assume that all variation is due to exogenous factors. Colleges and universities must be committed to supporting their students in completing programs in a reasonable period, and indicators need to be able to distinguish between students who drop out due to exogenous factors and those who do so due to inadequate or inappropriate attention by the institution.

Target graduation rates thus need to be considered on an institution-by-institution basis. The proper indicator for each college or university is the difference between its actual graduation rate and its predicted rate once differences in student and institutional characteristics are al-

lowed for. The predicted rate will be generated from a model of student retention along the lines of the approach taken in Finnie and Qiu (2008). The implication is that institutions with relatively low graduation rates might still fare well by this indicator, and the converse may be true for those with relatively high raw scores.

Employment Rates

There is some intuitive appeal in applying measurements of employment rates to colleges as the majority of their programs aim to be directly employment related. It is less obvious that employment rates are a suitable performance indicator for universities. The case is probably stronger for professional programs, such as health sciences, engineering or business that are aimed at specific occupations or employment prospects. The link between education and employment is less clear for general arts and sciences programs.

The most obvious problem with this KPI, however, is that colleges and universities cannot control the overall state of the economy. Economic activity can speed up or slow down due to changes in interest rates or exchange rates, booms or recessions in the economies of trading partners and so forth. These changes would be reflected in college and university KPIs, but they would have little or nothing to do with the quality of programs.

Further, colleges and universities cannot control structural changes in the provincial and national economies. For example, the recent commodities boom increased demand for skills associated with oil and gas and mining and dampened them for those associated with traditional manufacturing. It increased demand for these skills in Alberta relative to Ontario. Thus program mix and ability or willingness of graduates to relocate geographically may be as important as educational quality in determining employment rates.

If aggregate or summary employment rates were to be dropped as a performance indicator, however, the question remains as to how best to gauge whether the PSE system is appropriately responsive to the province's labour market needs. We do not have an answer to this question currently, although this is an obvious research priority. In keeping with the discussion in Chapter 3, we will look at the connections among changes in labour market conditions, changes in PSE program application patterns and changes in college and university program offerings.

Graduate Satisfaction Rates

The graduate satisfaction rate provides useful information on an institution's performance, but the same caveat applies as for graduation rates. Satisfaction scores vary systematically with student characteristics, type of program and so forth. Institutions cannot control many of these variables, and we do not want to introduce incentives that would discourage them from admitting certain types of students or offering certain types of programs. Like graduation rates, target graduate satisfaction scores need to be viewed on an institution by institution basis. Further, the proper indicator for each college is the difference between actual results and predicted results taking relevant student and institutional characteristics into account.

These points are illustrated by some internal HEQCO research (McCloy & Liu, forthcoming). McCloy and Liu investigate the hypothesis that graduate satisfaction rates vary systematically with characteristics of students and institutions. Their data are the individual student responses to the graduate satisfaction question for all colleges for each year from 2002 to 2007. The average

response rate is 74% over the period and the number of observations is nearly 250,000. The data required some cleaning, mainly involving developing criteria for observations to be included.

The dependent variable in their model can be interpreted as the probability that a respondent indicates that he/she is "satisfied" or "very satisfied" with how the college program prepared him/her to achieve goals after graduation. Student characteristics include: age, gender, domestic or visa student and full time or part time status at graduation. Characteristics of institutions include: college size, region where the college is located, field of study and credential type. The current status of graduates (studying, employed, etc.) was also included.

Simple correlations of the dependent variable with each of these characteristics revealed some interesting results. Satisfaction is greatest in the youngest group (<22), decreases in the middle range (22–25), and increases again for older respondents (>25). Males appear to be less satisfied than females. Those graduating while studying part time appear less satisfied than those studying full time. Large institutions fare less well than smaller ones. Metro locations do less well in the graduate survey than those outside the metro region. Health graduates are the most satisfied of the program categories. Those with one-year certificates are the most satisfied among types of credentials. Finally, those working in jobs related to their programs are the most satisfied.

There is significant overlap among these characteristics, however, so the real question is which ones are significant. McCloy and Liu employed maximum likelihood logistic regression analysis to answer this question. The results are revealing. Age, gender, enrolment status at the time of graduation, institution size and metro location cease to be significant once all variables are entered. Type of program continues to matter, however, with registration in health programs being a significant determinant of satisfaction scores, followed in impact by community service, preparatory/upgrading, business, creative and applied arts, engineering/technology and hospitality. Credential type matters as well, with those in one-year certificate programs being most satisfied. Not surprisingly perhaps, graduates working at a related job were the most satisfied.

5.3.3 Observations

Ontario has now had a decade of experience with KPIs. The obvious issue is the role these indicators should play in a re-designed accountability framework. The graduation rate is a likely candidate for inclusion, but only with a full understanding of how it varies with student and institutional characteristics. The aggregate or summary employment rate is less obviously suitable as a candidate for inclusion, although it is imperative that an alternative measure be developed to reflect the responsiveness of the PSE system to the province's labour market needs. The college graduate satisfaction rate is a suitable candidate for inclusion, but only with a full understanding of how it varies with student and institutional characteristics. Finally, serious consideration should be given to implementing an annual university graduate satisfaction survey.

5.4 Multi-Year Accountability Agreements

Multi-Year Accountability Agreements (MYAAs) constitute the third element of the current set of accountability arrangements. HEQCO was asked explicitly to evaluate the current arrangements and to make recommendations for a new accountability framework as necessary or appropriate. We look first at the current arrangements and then at options for their re-design.



5.4.1 Background

MYAAs have their origin in the Rae Report (2005). This report recommended that the government develop multi-year plans with publicly-funded institutions. These plans would have three basic features: (1) they would set out the government's overall objectives with respect to postsecondary education; (2) they would outline the government's commitment to multi-year funding allocations tied to performance results; and (3) they would articulate each institution's commitments to the broad goals of accessibility, quality improvements and accountability (Mason, 2007).

The first step towards an accountability framework of this type came with the Interim Accountability Agreements (IAAs) introduced in 2005–06. These one-year agreements defined the government's goals pursuant to *Reaching Higher*, and outlined short-term basic accessibility, quality and accountability commitments expected from institutions in return for additional funding. There were separate agreements with each college and university, setting out institution-specific performance expectations.

The IAAs were followed by MYAAs covering the period 2006–07 to 2008–09. MYAAs define government goals with respect to PSE and establish a system-wide schematic to link goals to performance measures and results. The schematic links *Reaching Higher* to the general objectives of access, quality and accountability, and adds specific performance measures for each general objective. Finally, there are examples of expected results for each of the objectives. Some of these latter entries are quite specific such as 'increase participation rates of 18–24 year olds'. Others are more general such as 'increase university and college full-time enrolment'. In a few cases, specific targets are mentioned, as in 'maintain or improve graduate rate of 60% for colleges and 74% for universities'. More often, there is a call for specific targets to be identified and incorporated in the agreements.

The MYAAs also outline longer-term access, quality and accountability commitments from each institution. Institutions are required to complete action plans which establish individual multi-year access and quality strategies, and to list indicators to be used and targets to be achieved. In

return, the MYAAs provide specific preliminary operating funds allocations for three years. There is an annual review process to check institutional performance against commitments.

The current MYAA process operates as follows. MTCU sends the MYAA template to colleges and universities and each institution assembles the required information, prepares a report and returns it to the Ministry. MTCU officials then examine the reports and work informally with the institutions as necessary or appropriate to complete the information.

MTCU prepares a formal response to each institution's submission containing the Ministry's evaluation of the institution's performance against formal or informal targets. Where performance is deemed to fall short of expectations, the college or university is asked for an action plan to remedy the situation.

5.4.2 MYAAs in Practice

We now have two years of experience with MYAAs, so there is some basis for evaluating their effectiveness in meeting accountability expectations.

Aggregate Participation Indicators

The MYAA asks universities to report on enrolment growth at the undergraduate level, and achievements relative to graduate and medical enrolment targets where applicable. Colleges are asked to report on institutional enrolment growth. The stated purpose is to allow the Ministry to monitor its commitment to increase enrolment in these categories.

Accessibility Indicators

The MYAAs are designed to capture the government's accessibility goals. Institutions are asked to report the number of students in under-represented groups and the methodology they use to arrive at these numbers. Each institution is also asked to describe its access improvement strategies and the proposed and achieved results of these strategies, and to explain any variance.

Aboriginals

Institutions use a wide range of tracking techniques to estimate Aboriginal enrolment numbers. Where possible they obtain information from multi-purpose surveys. Colleges rely on data from OSAP and OCAS applications and also use information collected from the annual Student Satisfaction Survey and the Ontario Colleges Student Engagement Survey. Universities use NSSE and the Canadian University Survey Consortium (CUSC).⁴⁹ All of these methods require students to self-identify.

Institutions supplement these sources with internal surveys and in-house student information systems. Some track Aboriginal student numbers by registration in student services and support programs and others make estimates based on enrolment in Aboriginal-specific academic programs. Still others identify Aboriginal students by the sources of their funding.

49 "CUSC is a group of Canadian universities working cooperatively to gain a better understanding of the Canadian undergraduate student population" (<http://www.cusc-ccrcu.ca/home.htm>). Participation in CUSC is voluntary and not all Ontario universities participate.

With multiple tracking systems in place, some institutions openly acknowledge difficulty in ascertaining correct numbers. One college, for example, uses six measurement tools and each reports a different number. One university reports that it estimates numbers based on Application Equity Census and NSSE data, but does not adjust for double counting. Also, some institutions indicate that a number is generated to reflect both undergraduate and graduate students, which may not be an accurate assessment as graduate student populations tend to differ from undergraduate ones.

The majority of institutions have processes in place to track Aboriginal students through their programs. Those that do not indicate targeted activities for tracking Aboriginal students have more general programs and activities that can relate to this group. A few institutions report that they do not have a tracking system in place.

Most institutions report strategies to increase enrolment of Aboriginal students and a number of techniques are employed. Several report community outreach and development of relationships with Aboriginal bands and councils to increase awareness among potential students. Other community out-reach activities include engagement with local elementary and high schools to raise awareness of programs available. Some institutions are increasing funding for Aboriginal students through grants, bursaries and donations, and are working to increase awareness of financial aid. Many institutions report that they are developing programs specifically tailored to the Aboriginal population.

A great number of services have been developed to support Aboriginal students. These range from providing academic advice, to hosting native cultural activities, to supporting student-led activities. Most of the institutions report that they are tracking participation in these programs.

Administrative changes are also reported as reflective of the strategies and activities. Many of the institutions report that new systems are being developed to identify and track student participation in support services. Some are also developing centres and job positions devoted to engaging Aboriginal students, while others have taken more systemic approaches such as mandating cultural awareness training for all employees.

Mature Students (colleges only)

There is no common definition of a mature student. At a national level, the Statistics Canada Adult Education and Training Survey (AETS) puts the minimum age at 25. According to AETS, 70% of mature students in Canada are aged 25–35 and have been out of school for 10 or more years. Sixty percent have some form of PSE prior to returning and the majority (67%) are enrolled in career and/or technical programs. Overall, these students tend to be part time and to pursue non-linear paths to credential completion. They also tend to stay close to home to study.

Colleges as a whole do not group students into age categories, but rather into cohorts of prior experience: direct from high school, delayed entry (usually under 20), PSE transfer (usually between ages 20 and 24) and delayed entry with previous PSE (most likely to be over 30 years of age). Either of the latter groups can include mature students.

Looked at another way, there are a number of definitions used for mature students. MTCU, standard surveys and individual institutions all associate different characteristics with being a mature student. Most definitions are based on age and these vary widely: 25 years old (OC-

SES and College Ontario's College Applicant Survey), 24 years old (NSSE), 21 years old, not entering directly from high school, or, as per the MTCU definition, 19 years old without an Ontario Secondary School Diploma (OSSD). Definitions within institutional systems are equally varied.

Mature students are thought to have distinct needs and require significant support, as do members of any other under-represented group. The rates of attrition are particularly high for this group and estimates suggest 25–50% drop out after the first year.

In college MYAA reporting, responses to the question of mature student access and participation vary dramatically. Institutions report that information on mature students is collected through a number of different measures and many use multiple measurement tools. While some do not indicate what measure is used, and one notes that it does not currently track mature students, information is commonly gathered from a number of internal and external sources. Some use their in-house registries or collect first year student surveys; others rely on the Student Satisfaction KPI survey demographics or information coming from the OCAS application data (or make estimates based on those numbers).



Because of the overlapping data collection methods and the wide range of mature students (based on definitional discrepancies), some institutions note that they have significant challenges in correctly gathering data on student numbers. Some colleges indicated that they attempt to adjust the data to develop a more accurate number.

When institutions report on activities designed to increase mature student participation, there are three primary types: those that are directly related to recruitment and enrolment, those that develop new programs and curriculum to appeal to mature students, and those aimed at improving retention rates by improving support services.

Participation rates are the key target for most colleges. Recruitment activities include developing contacts within the community to raise awareness of programs, and adult-targeted market-

ing. In developing community contacts, universities are working with local agencies to determine training and education needs. These contacts also provide a route to promote enrolment. There is interest in improving Prior Learning Assessment Recognition (PLAR) abilities to encourage participation. Some colleges are also developing programs specifically targeted towards mature students. Multi-year diploma programs in Technology, Health and Business Foundations prepare students for traditional PSE and enable them to upgrade their academic standing.

Retention rates are commonly noted as a targeted indicator in the college MYAAAs. Increased support services, such as campus day-care facilities and support group career-focus sessions are examples of programs aimed at improving retention rates in this sector of the population.

Students with Disabilities

There are challenges in tracking students with disabilities, and perceived participation rates may be influenced by the definitions used on surveys, the survey target group, the questions asked and the means of calculating percentages. It is not always clearly indicated who qualifies as disabled since different sources included different symptoms and difficulties in the definition.

Beyond definitional challenges and the inability to create aggregate data from unique institutional reports, there is also the challenge of students' self reporting. There is no obligation for students to report a disability and unless they are in need of support they may not do so. Most information comes from self-identifying students in the institutions, particularly those who sign up for support services. Other methods for determining the disabled population include probability samples from self-reports, and reports from on campus professionals who provide disability related services.

The majority of institutions track students with disabilities (SWDs), and although many universities have not reported it in the MYAAAs, only one college reports that it does not currently track them.

The majority of universities track students exclusively by self-identification through registration with support services. A few universities estimate numbers from CUSC data, one reports using NSSE and one reports asking for this information on other surveys.

Colleges employ a number of methods to track disabled students. As with universities, the majority of colleges note the number of students registering with support services but very few use it as the only counting measure. Nearly half of the colleges gather numbers from the OCSES and a few draw from the KPI. Only one uses OSAP data for this information. Five colleges have their own surveys asking for this information and four colleges report in-house tracking systems either in place or under development.

Many colleges and universities are working to increase the number of SWDs applying and attending. Contacts with high schools are common methods for identifying students and encouraging their involvement. Local community contact is not as prevalent, with only two institutions indicating that they engage with specialised schools and institutes such as the Canadian National Institute for the Blind.

Retention and student success are prime concerns for both colleges and universities. There are a number of different activities that institutions undertake to improve participation by SWDs.

Many create new student services and programs catering to the needs of the group and many also track the number of students participating in these services and programs.

A large number of institutions are working administratively to improve support for SWDs. Activities such as developing tracking systems, restructuring departments, increasing staff and developing strategic plans are common in both colleges and universities. A few are also working to increase the budget for services for students.

First Generation Students

Although surveys like OCSES and NSSE ask students whether or not their parents attended postsecondary education and at what level, there is little system-level administrative data on first generation students.

Both colleges and universities are working to increase participation and retention of first generation students. Most institutions have developed methods to measure participation, though not all have indicated their methods through the MYAA.

There are three methods most commonly indicated by colleges. Eleven colleges use OCSES data, in which students self identify; a number record first generation student numbers as indicated in the KPIs; and some institutions use unique institutional surveys to ask questions about parental education levels. Occasionally OCAS data are used. One college uses registration numbers from student services to determine numbers.

Universities are collecting information on first generation students in similar ways. NSSE data are the most common tool for estimating numbers and many universities also use institutional surveys to collect this information. Support service registration numbers are often used, and many institutions also track the numbers through applications for bursary or other funding.

Both colleges and universities report similar concerns in identifying these first generation students. Since many institutions use two or more tools there are issues of duplication of numbers. Some attempt to adjust for overlap, but many do not. Two institutions have asked that the government develop a tool for a consistent reporting process, particularly for first generation students.

There are a number of strategies and activities employed by colleges and universities to indicate success in participation by and retention of first generation students. Colleges are working to develop contacts with the community in order to generate more interest from first generation students and to create awareness of financial aid opportunities. Developing support services and measuring participation in these services is one method by which colleges are tracking success with first generation students and retention rates within the group. Universities report a diverse range of activities, such as in-house tracking systems for enrolment numbers and academic support services.

Many of the services used by first generation students at both colleges and universities are part of campus-wide strategies for student support services, rather than being specifically directed towards this group.

Quality Indicators

The MYAA template provides little guidance on how to report quality indicators. Institutions are asked to provide a description of strategies that will support the quality of the undergraduate and graduate learning environments as appropriate to their unique focus. The MYAA template indicates that MTCU is looking in particular for information on student/faculty engagement and learning quality, and cites examples of possible indicators.

Reports indicate that institutions aim to improve the quality of learning in a number of ways. The programs, initiatives and activities that are in place to indicate improvement can be grouped into five primary categories: infrastructure improvement, social aspects of student success, academic aspects of student success, issues pertaining to faculty and administrative changes.

Infrastructure improvement was the most commonly cited of the five categories and advanced use of technology was the most frequently cited initiative within this category. Sixty-three percent of colleges and 52% of universities report some activities towards improving technological access and programming. Other initiatives include improving library collections and spaces, and access to databases, as well as developing new facilities and upgrading others.

The second most common category cited by institutions for addressing and tracking quality was based on social aspects of student success. Over 63% of colleges and 42% of universities implement some form of student survey on this topic, and tracking participation in student services activities was particularly important for colleges (54%).

Overall, activities related to social aspects of student success reported by institutions include: providing students with course evaluations; surveying students for satisfaction in their first and last years; the development of new social services programs and activities; tracking participation in student services including academic, personal and career training; tracking participation in orientation/transition programs; and participation in social events.

In the category of academic aspects of student success, universities report more activity than do colleges. Universities report encouraging graduate enrolment (36%) and increasing undergraduate participation in research activities (21%) while colleges do not cite a great many activities other than new program development.





Council (SSHRC) and the National Sciences and Engineering Research Council (NSERC), whereas this was not a factor for any college.

Overall, activities related to faculty issues include: increasing faculty numbers and increasing hiring of those with PhDs; providing faculty training for IT programs and professional development courses; and increasing the number of SSHRC and NSERC grants to faculty and graduate students.

Finally, colleges and universities are focusing administrative activities in different ways. Universities are focused on decreasing class size (32%) and occasionally mention retention in this context (26%). Seventy-two per cent of colleges, on the other hand, report retention as a main feature of their quality education strategy and activity, and 54% are reassessing curriculum and programming. Reducing class size was an issue for less than 10% of reporting colleges.

Overall, activities related to administrative issues include: improving retention and graduation rates; assessing curriculum, programming and learning outcomes; and decreasing class size.

One of the weaknesses exposed by this review is that institutions may not be reporting all activities in answer to open-ended questions. Where one institution may determine new buildings to be a quality indicator, another may be involved in the activity but not report it. Thus, without a standardized form or perhaps a checklist, it is impossible to say with any certainty what the most common quality indicators are.

Overall, activities related to academic aspects of student success include: tracking student success over the course of studies; increasing graduate student enrolment and support; encouraging undergraduate participation in research; encouraging international exchanges for students (as well as faculty and staff); and developing new programs to suit the needs of students.

In the category of faculty, both colleges (41%) and universities (42%) are focused on increasing the number and quality of their faculty members. Improving faculty training and providing professional development were two of the most common activities of colleges, with 63% involved in some form; however, only 31% of universities were focused on this area. In contrast, universities were aiming to increase research grants from the Social Sciences and Humanities Research

5.4.3 Observations

There is much to like about the current MYAAs. They feature an appropriate layering from overall goals in *Reaching Higher* to objectives, to performance measures, to expected results. They are multi-year, thus allowing for longer-term planning, and there is explicit recognition of the unique missions and visions of colleges and universities.

There is also considerable room for improvement. Government sector-wide targets are not explicitly incorporated, so there is no way of checking whether the collective actions of colleges and universities add up to aggregate targets. There is insufficient recognition of possible trade-offs among goals; e.g. accessibility and graduation rates. Performance indicators are not standardized for student and institutional characteristics. There are no common definitions of under-represented groups and hence there is considerable variation as to what gets reported. There is far too much detail in the reporting, particularly of quality indicators. The evaluation of performance against targets in the report-back phase is overly quantitative and mechanical. The implications of missing targets are not clear.

In sum, the MYAAs as currently designed and administered offer a promising basis for a revised accountability framework, but much work remains before a new scheme can be confidently implemented.

5.5 Towards an Accountability Framework for Ontario PSE

The objective of this section is to sketch out the structure of an accountability framework for Ontario PSE. The first step is to identify key features of a framework, drawing on some simple principles and on experiences from other sectors and jurisdictions. This is necessarily a preliminary discussion as some key data are not available and further research is required on a number of important components. We will continue to report on this framework in future publications.

We recognize, however, that the current MYAAs expire this academic year and that some type of framework must be in place this fall to guide discussions with colleges and universities. Thus, in section 5.7, we suggest an interim arrangement.

5.5.1 Key Features

Ontario has a highly decentralized PSE system, with colleges and universities having considerable scope to establish their own missions, set their own goals and structure academic activities accordingly. There is much to recommend this arrangement, and few observers have ever suggested that it be altered. Yet the province also has legitimate goals for the PSE sector as a whole, as the discussion in the preceding chapters makes clear. Thus the challenge is to find ways to align the interests and actions of the individual units with the province's broad goals for the sector.

This challenge is immediately recognizable as a classic principal-agent problem, and viewing it in this manner assists in identifying the requirements of an effective accountability framework. The principal-agent literature deals with the challenge of motivating one party to act on behalf of another. The principal has specific goals or objectives to realize but is unable or unwilling to carry out the necessary activities itself. Agents have the capacity to carry out these

activities but also have their own goals and objectives which are not necessarily in accord with those of the principal. The challenge is to devise mechanisms to align the activities of the agents with the goals of the principal. This alignment is generally accomplished through some sort of incentive scheme.

The principal in this case is the provincial government, specifically MTCU. The Ministry is responsible for ensuring that broad societal objectives for PSE are achieved. It does not carry out the PSE activities itself but instead delegates that responsibility to agents; i.e. colleges and universities. The advantage of this approach is clear. The Ministry need not concern itself with complex and detailed questions of how best to approach teaching and research. Instead, responsibility rests with those with the requisite knowledge, skills and experience.

The challenges are immediately apparent as well. For example, how does MTCU determine if broad societal objectives for PSE are being realized if it is not itself actually involved in the day-to-day activities? This issue is addressed by monitoring the sector. What should it monitor though? Put differently, what types of information does the Ministry need in order to discharge its responsibilities as principal? Clearly, it does not need information on educational inputs or processes. To request and try to monitor this type of information is to negate the very purpose of delegating teaching and research to colleges and universities in the first place. The Ministry simply does not have the expertise to evaluate this detailed and complex material.

Just as clearly, it does need information on educational outputs. Is the sector meeting the province's objectives for the PSE system? Are individual colleges and universities meeting their targets? These questions dictate the key features of an accountability framework for PSE in Ontario.

First, the framework must first clearly identify government objectives for the PSE sector, define appropriate performance indicators and set sector-wide targets for each goal. In setting these targets, the government would explicitly take inter-relationships among goals into account, particularly where trade-offs among goals may exist. The indicators would be limited in number, clearly defined and based on reliable data.

Second, the framework must identify performance measures and establish targets for these variables for each college and university. Agreements would be established after consultation between MTCU and institution officials, and would be multi-year to allow for long-term planning. The performance measures would be few in number, employ common definitions across the sector and be based on reliable data. Institution-specific targets would reflect unique institutional missions and visions and represent agreement on what is achievable in the current PSE environment.

Third, the framework must deal with the "adding up" issue. That is to say that, where relevant, the sum of targets set for individual institutions must be consistent with the aggregate target as established by the government. This challenge will necessarily involve considerable discussion between MTCU and college and university officials. Both types of targets will need to be constantly evaluated, and unrealistic or unsustainable ones adjusted or abandoned.

Fourth, the framework would contain an ex post indication of performance relative to targets for both the system as a whole (e.g. were overall accessibility targets met?) or for individual institutions (e.g. did a particular college or university increase its retention rate as envisaged?). The reporting of performance relative to targets can be quantitative but the evaluation would

be more qualitative. The PSE system is too multi-faceted and complex to pretend that small numerical discrepancies in either direction are meaningful.

A further question is how does the government influence the outputs of the sector if the agents are diverse and semi-autonomous colleges and universities? Again, the principal-agent framework offers useful insight. Reliance on fiat or explicit direction from government negates the benefits of delegating responsibility in the first place. The preferred approach is to structure an incentive system that aligns the interests of the agents with those of the principal.



This approach imposes a final feature on the accountability framework. It would be constructed in a manner that supports purposeful action by both institutions and government to achieve goals and targets. That is, the framework must be clear on where responsibility lies for initiating next steps as required, and must set out the process to be followed. There must be a clear and predictable link between performance and funding or regulations. Importantly, the framework must contain binding commitments by the government as well as by institutions.

The preceding chapters are constructed to guide the development of a framework along these lines. They identify broad government goals – aggregate participation, accessibility and educational quality – and point to the possibility of trade-offs among these goals. They discuss possible performance indicators for each goal and indicate where data are available and where new information will need to be developed. They provide examples of what is involved in establishing sector performance targets. They emphasize the importance of standardizing performance indicators for systematic variations in student and institutional characteristics. They indicate the wealth of information and experience that is available and can be drawn on from the internal planning activities of colleges and universities.

We will continue to build on this material as we develop our recommendations for an accountability framework for Ontario PSE.

5.5.2 Lessons From Other Jurisdictions and Other Sectors

There is considerable guidance to be had from looking at the experiences of other jurisdictions in developing accountability frameworks for PSE, however it is difficult to identify a best practice in the area. Each nation or region has a distinct history, political culture and system design that influence how regulations are shaped. Thus, the following accounts are merely descriptions of the way in which other systems are addressing issues of managing government and institutional relationships.

The 1999 Bologna Declaration of the European Higher Education Area (EHEA) dramatically reshaped European higher education. In an effort to harmonize the education system in a man-

ner based on the economic system, the EHEA supported an accountability framework aimed at reshaping operating procedures to ensure quality and consistency across the EU. The process examines transnational and national systems as well as disciplinary fields, while respecting the autonomy of nations and academic fields to self monitor. Rather than dictating a systematic approach or benchmarked standards, the Bologna Accord aims to balance autonomy, transparency and comparability. Nations are left to devise their own system qualification frameworks, systems for "tuning" or determining program expectations, and credit system design.

Within the EU there are many examples of strong accountability frameworks that have exacted significant change in higher education systems in the past 10 years. The UK is a prime example of an advanced accountability framework. There are two agencies that oversee accountability and quality, the Higher Education Funding Council of England (HEFCE) and the Quality Assurance Association of Higher Education (QAA). HEFCE, responsible to the National Department for Innovation, Universities and Skills (DIUS), develops system-wide strategic plans and establishes Key Performance Targets (KPT). HEFCE is also responsible for distributing government funding to public institutions while QAA manages program quality and institutional reporting. QAA reports annually to HEFCE with a summary and recommendations. Recent changes to the UK accountability framework have tried to streamline processes to make the reporting less cumbersome by requiring one annual submission, an annual data audit and an assurance review every five years. The new arrangement, implemented in August 2008, could be a valuable source of information to HEQCO as the framework begins its first year.

Within Canada, all provinces have quality assurance mechanisms and some form of accountability measures in place. Practices vary considerably, however (Council of Ministers of Education, Canada, 2002). British Columbia is generally regarded to be a leader in Canada in this respect. Accordingly, HEQCO hosted a presentation by Walter Sudmant of the University of British Columbia on British Columbia's experiences with their multi-year accountability agreement. Mr. Sudmant's slides and a video of his presentation are available on the HEQCO website. We will draw on these and other experiences as useful and appropriate.



for non-profit institutions. The example used was a scorecard for a specific hospital. Indicators were chosen to reflect clinical utilization and outcomes, and the institution's scores were compared to system-wide values. A graphical technique was then used to indicate whether the hospital's performance was above, at or below average for each measure. The institution thus gets a snapshot indication of where it needs to focus attention.

There is an understandable interest in comparing performances of hospitals. The concern, however, is that ranking can be seriously misleading. For example, a hospital that took a dispro-

portionate number of relatively high-risk cases would fare poorly if death rates were the sole performance indicator. The solution is to use statistical techniques to standardize for patient and other hospital characteristics. The result is a measure that allows for comparisons among hospitals and provides an opportunity to examine why variations in outcomes exist after characteristics are held constant.

The relevance of this latter point for universities and colleges is obvious. For example, if graduation rates and average times to completion are to be used as performance measures, it is essential to first standardize for differences in student characteristics. A college or university which, as part of its mission, accepts traditionally under-represented students will almost certainly have longer times to completion and lower graduation rates than one that admits students primarily or solely on the basis of traditional academic merit. Only after these differences are taken into account can we begin to analyze relative performances appropriately.

We will continue to draw on lessons learned from the health care sector in developing the long-run framework.

5.6 A Transitional Multi-Year Accountability Agreement

As noted at the beginning of this section, the current MYAA framework ends this year and some new set of measures must be established. We suggest that a transitional accountability agreement be put in place for 2009–10, with a view to implementing a new comprehensive framework for 2010–11 and beyond. The timing is propitious. *Reaching Higher* ends in 2009–10 and so a new accountability framework can be introduced as part of a new comprehensive PSE strategy.

We will outline details of the transitional arrangements directly to MTCU as per the policy advice component of our mandate. Generally, however, the transitional MYAAs would be constructed with three basic considerations in mind:

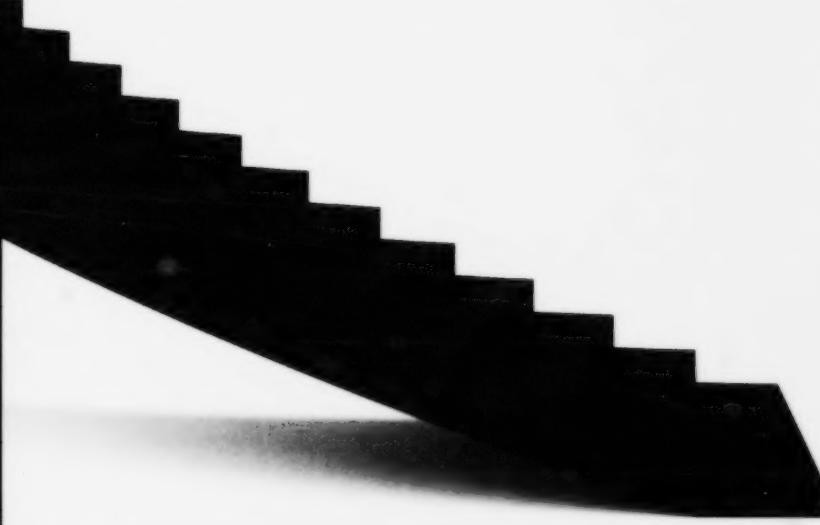
- to build on the current MYAAs and other reporting requirements
- to implement no significant changes at this time that will undermine a future reframing of the accountability agreements
- to create coordinated and coherent system-level data where possible.

By building on the current MYAAs the transitional MYAAs should:

- continue to focus on government priorities of aggregate participation, accessibility and educational quality
- draw on what we have learned about how institutions report on these requirements
- where possible, draw on additional reporting requirements that might inform the participation, accessibility and educational quality measurements
- where possible, reduce duplication between other reporting requirements and the MYAAs
- where appropriate, draw on what we have learned about the use of certain data sets
- where possible, create transitional system-level data
- require universities and colleges to provide narrative information for each indicator that directly ties reported data to their unique missions, mandates and activities

We further recommend that current university and college KPIs be folded into the MYAAs where appropriate and that MTCU explore ways of folding in other additional reporting requirements (e.g. AETS funding reporting, access funding reporting) against the appropriate indicators (e.g. Aboriginal participation and participation for students with disabilities respectively). This would allow institutions to do two things: (1) to contextualize the KPIs with reference to mandate and mission and other institutional data and (2) to reduce duplication in reporting requirements. The benefit for MTCU is that KPIs will be used effectively in a way that makes the MYAAs more holistic and meaningful.

We believe that introducing transitional MYAAs along these lines will add some depth and breadth of understanding of the current PSE environment at the system level without undermining or predetermining the long-term exercise of reframing future accountability agreements.



six

Chapter 6: Research Priorities

The objective of the preceding chapters was to provide a base-line survey of the challenges and opportunities facing Ontario PSE. The discussion was organized around the three framework questions introduced in *R&R 2007*:

- What should Ontarians expect from the postsecondary education sector?
- How well is the sector meeting these expectations?
- Where outcomes fall short of expectations, how can the sector's performance be enhanced?

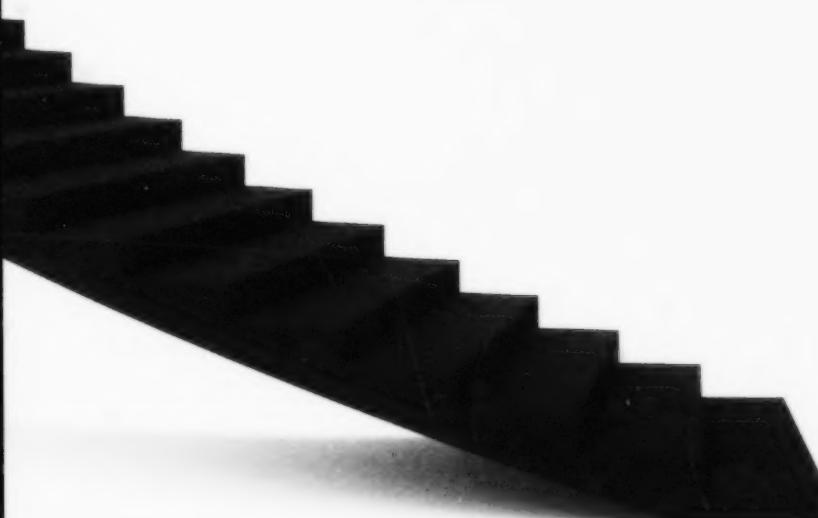
General expectations for the PSE sector were derived from *Reaching Higher* and other relevant government documents. Considerable attention was paid in each chapter to translating general expectations into metrics and targets. This task proved easier in some instances (e.g. participation) than in others (e.g. educational quality).

Judging performance against expectations was hampered in nearly all instances by data limitations. From the evidence that is available, it seems clear that Ontario's postsecondary education sector compares favourably to those in other provinces and many other countries with respect to providing access to quality education. Two key questions remain, however. First, could the province set its PSE sights higher and aim for true international excellence and, if so, what investment would be required? Second, is even the current position sustainable given the rapidly-evolving educational requirements of a modern economy and society and the efforts that other jurisdictions are devoting to furthering postsecondary education?

It was evident from the literature and other material reviewed that considerably more is known about the challenges facing PSE than about how to address them. Future work must focus on identifying policy options and assessing their relative effectiveness. There is encouraging progress on this front with the advent of new research methods such as experimental designs and random assignment interventions. HEQCO is actively involved in these new lines of enquiry.

Our work plan is constantly evolving to address the unanswered questions. We mentioned specific plans and priorities in earlier chapters. To summarize, key projects for the next 18 months include:

1. Mining existing data sources such as the 2006 census, the Youth in Transition Survey, the Survey of Income and Labour Market Dynamics and the College Graduate Survey to provide a more complete empirical overview of PSE participation and attainment.
2. Developing a better understanding of two relatively neglected types of PSE: adult education (life-long learning) and apprenticeship training.
3. Producing estimates of PSE participation rates for traditionally under-represented groups through survey or other techniques.
4. Identifying and assessing barriers to PSE from an Ontario perspective, with particular attention to non-financial barriers.
5. Sponsoring interventions in colleges and universities to test the relative effectiveness of policies designed to address barriers to PSE participation and persistence.
6. Developing a fuller understanding of the ability of engagement surveys to serve as indicators of learning outcomes in colleges and universities.
7. Evaluating the effectiveness of Ontario's quality assurance processes.
8. Sponsoring interventions to evaluate alternative approaches to teaching and learning.
9. Developing ways to mobilize existing knowledge about effective teaching and learning practices.
10. Evaluating the effectiveness of student service programs and identifying promising practices.
11. Evaluating the ability of the PSE system to respond appropriately to the province's labour market needs.
12. Providing a more complete account of PSE pathways and explaining student choices to switch programs, institutions or sectors.
13. Providing a preliminary analysis of proposals to deal with the GTA capacity challenge.
14. Outlining a multi-year accountability framework for Ontario PSE.
15. Providing detailed analyses of potential performance indicators for inclusion in a multi-year accountability framework.
16. Developing a fuller understanding of the effect of tuition and student financial assistance policies on student participation, particularly in relation to professional programs and the Student Access Guarantee.



Acronym List

AB: Alberta

ACCC: Association of Canadian Community Colleges

ACL: Active and Collaborative Learning

AETS: Adult Education and Training Survey

AUCC: Association of Universities and Colleges of Canada

BC: British Columbia

BCCAT: British Columbia Council on Admissions and Transfer

CAAT: College of Applied Art and Technology

CAS: College Applicant Survey

CCSSE: Community College Student Engagement Survey

CEGEP: Collège d'enseignement général et professionnel

CGPSS: Canadian Graduate and Professional Student Survey

CLA: Collegiate Learning Assessment

CMEC: Council of Ministers of Education Canada

CMSF: Canada Millennium Scholarship Foundation

CO: Colleges Ontario

COU: Council of Ontario Universities

CSRDE: Consortium for Student Retention Data Exchange

CUCC: College University Consortium Council

CUDO: Common University Data Ontario

CUSC: Canadian University Survey Consortium

CVS: Credentials Validation Service

DUIS: Department for Innovation, Universities and Skills

EEE: Enriching Educational Experiences

EHEA: European Higher Education Area

EPI: Educational Policy Institute

EU: European Union

FIPPA: Freedom of Information and Protection of Privacy Act

FITS: Freshman Integration Tracking System

FTE: Full Time Equivalent

GPA: Grade Point Average

GTA: Greater Toronto Area

HEFCE: Higher Education Funding Council of England

HEQCO: Higher Education Quality Council of Ontario

HRSDC: Human Resources and Social Development Canada

INQAAHE: International Network for Quality Assurance Agencies in Higher Education

IAA: Interim Accountability Agreement

IT: Information Technology

ITAL: Institute of Technology and Advanced Learning

KPI: Key Performance Indicator

KPT: Key Performance Target

LAC: Level of Academic Challenge

MB: Manitoba

MTCU: Ministry of Training, Colleges and Universities

MYAA: Multi-Year Accountability Agreement

NB: New Brunswick
NL: Newfoundland and Labrador
NS: Nova Scotia
NSERC: National Sciences and Engineering Research Council of Canada
NSSE: National Survey of Student Engagement
NV: Nunavut
NWT: Northwest Territories

OCAD: Ontario College of Art and Design
OCAS: Ontario College Application Service
OCAV: Ontario Council of Academic Vice-Presidents
OCGS: Ontario Council of Graduate Studies
OCSES: Ontario College Student Engagement Survey
OCQAS: Ontario College Quality Assurance Service
OCUTG: Ontario College University Transfer Guide
OECD: Organisation for Economic Co-operation and Development
OEN: Ontario Education Number
ON: Ontario
OQF: Ontario Qualifications Framework
OSAP: Ontario Student Assistance Plan
OSSD: Ontario Secondary School Diploma
OUAC: Ontario Universities' Application Centre

PECEA: Postsecondary Education Choice and Excellence Act
PEI: Prince Edward Island
PEPS: Postsecondary Education Participation Survey
PEQAB: Postsecondary Education Quality Assessment Board
PI: Performance Indicator
PLAR: Prior Learning Assessment Recognition
PQ: Province of Quebec
PQAPA: Program Quality Assurance Process Audit
PSE: Postsecondary Education
PSIS: Postsecondary Student Information System

QA: Quality Assurance

QAA: Quality Assurance Agency of Higher Education

R&R: Review and Research Plan

RFP: Request for Proposals

SAG: Student Access Guarantee

SAT: Scholastic Aptitude Test

SCE: Supportive Campus Environment

SFI: Student-Faculty Interaction

SK: Saskatchewan

SSHRC: Social Sciences and Humanities Research Council

SWD: Students with Disabilities

UK: United Kingdom

UPRAC: Undergraduate Program Review Audit Committee

URC: University Report Card

US: United States

USA: United States of America

YITS: Youth in Transition Survey

YITS-B: Youth in Transition Survey, Cohort-B

YT: Yukon Territory



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